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Research exercise: An Ecological and Historical Perspective on the Glen Helen Region of Yellow Springs

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Introduction

- Historical Ecology combines human land use, environmental factors and forest dynamics over a historical timeframe to establish baseline conditions for restoration.

- The study site was Glen Helen: a 1000 acre forest preserve owned by Antioch College. Home of the Yellow Springs.

- Due to its preserve status, this site has the potential to serve as a regional target for forest restoration.

Study questions

- How has human land use over the past 300 years influenced the forest dynamics of Glen Helen?

- How can the history of Glen Helen direct forest managers in their restoration attempts?

- What ecological and historical factors have contributed to the landscape and use of Glen Helen today?

Methods

- Dendrochronology- Tree ring analysis
- Comparative photography
- Speaking with local residents of Yellow Springs
- Review of historical accounts of the Glen

Timeline of Human History

1768- The Shawnees move to "Old Town" on the Mad River
1794- The Symmes Purchase
1803- first county road is authorized through the Glen
1804- Activities at Glen Helen began
1805-1810- The Spring became a popular health resort and vacation spot
1805- Pikes from Clifton to Xenia was laid out
1825- Onewite Commune
1827- Elisha Mills bought the Yellow Springs
1829- Mills advertizes his mansion
1840- Old Neff House built
1850-  Neff sold 104.6 acres
1859- Fire destroys the resort and water cure
1869-1870- Hotel erected
1892- Hotel torn down
1902- Dance Hall erected, later destroyed by fire
1914- Neff sold 104.6 acres
1929- Hugh Taylor Birch donates the land to Antioch College

Repeat Photography

- A. The Lake and Dance Hall in Glen Helen (~1910 left, 2012 right).
- B. The Yellow Springs 1940 left, 2012 right
- C. Helen's White Oak Tree (~1925 left, 2012 right)

Repeat photography is a popular method used by ecologists to study changes in vegetation in an area. Photograph A shows the dance pavilion and lake, which is no longer dammed up. Here also is the first color photograph of the Yellow Spring, renovated in the 1940s. Photograph C shows Arthur E. Morgan and Lucy G. Morgan with Hugh Taylor Birch at Helen's favorite tree in the Glen after her death in 1925. It still stands there today.

Dendrochronology

Growth patterns from the 5 oldest trees sampled in The Glen in 2010. Dendrochronology is used to record environmental and human-influenced changes in a landscape. Peaks in ring width following 1805 could indicate understory release due to clearing for the Pike and various buildings, showing direct evidence of human factors playing into forest dynamics. It is our hope to collect more samples for further study.

Conclusions

By comparing the extensive human land use, beginning in the late 1700's, and the dendrochronological evidence, we have begun to see how the human development of Glen Helen has made the forest what it is today. As managers at the Glen continuously shape the landscape, they may use this information to understand the forest's potential and overcome difficulties in restoration.

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