Developing a Method for Chronicling Historic Landscape Change: A Case Study of the Mill River Watershed

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INTRODUCTION

Since the early 1640’s, the Mill River and its tributaries have provided local industry with a cheap and accessible power source. Grist mills appeared first, followed by the wool, cotton and paper industries. These industries clustered around natural falls along the Mill River, ideal sites for the erection of power-harnessing dams. Industrial growth has the potential to alter a landscape beyond the immediate impacts of dam and factory construction. Population growth is one such example, resulting in an increase in the residential and agricultural needs of the affected community. The purpose of this project was to map industrialization of the Mill River Watershed, and to collect information into a GIS database that could then be used to assess the impact of local industry on long-term landscape change. Due to map availability, this project focused on Northampton.

Mill River Watershed

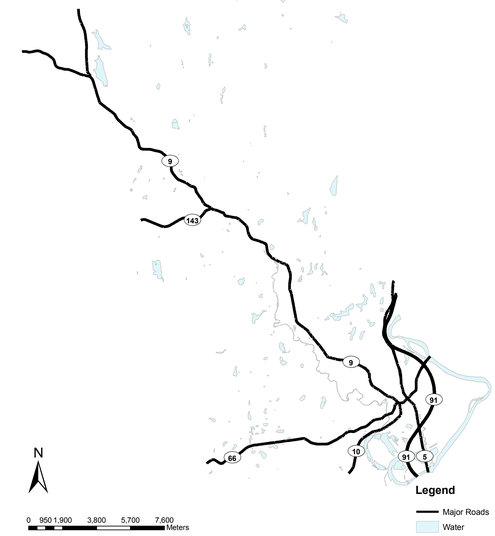

Figure 1: The Mill River Watershed covers over 33,000 acres of Western Massachusetts (52 mi^2), and has exerted a significant influence over the ecology, history, and settlement patterns within its borders. Inhabitants of the Mill River Watershed have repeatedly altered the natural course of the river to better serve their agricultural and industrial needs.

Dams of the Mill River

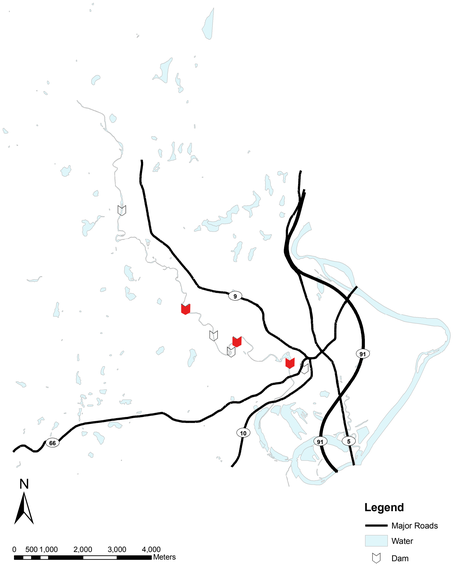

Figure 2: Grist mills were the first mills erected along the Mill River. These sites were later taken over by local manufacturing companies, becoming industrial centers. Dam sites marked in red represent locations examined in this study: the Nonotuck Mill site, Paper Mill Village, and the Upper Mill dam (left to right).

METHODS

300 years of historic maps (1700-1903) were geo-referenced in ArcGIS. Maps were obtained from the Mill River Greenway Initiative, Forbes Library, and Historic Northampton. Geo-referencing was conducted by comparing historic maps with a base map constructed from local road and hydrology data published by the Massachusetts Office of Geographic Information (MassGIS). It was assumed that the main intersections in towns along the Mill River had remained in the same general location throughout the region’s post-colonial history. Maps varied greatly both in accuracy and in detail. As a result, it was necessary to compare maps with local industrial histories. Archival sources provided detailed information regarding mill and factory locations, names, changes in ownership, number of employees, product, and power source. These details were incorporated into layer attribute tables. Figures 3-6 chart industrial growth at three sites on the Mill River: the Nonotuck Mill site, Paper Mill Village, and the Upper Mill dam . Figures 7-10 chart changes in power source over time.

Map Series 1: Industrial Growth 1831-1895

1831

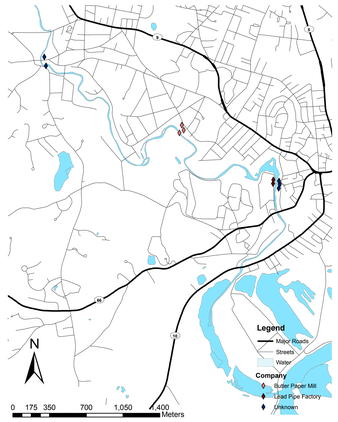

Figure 3: Northampton industry at the Nonotuck Mill site, Paper Mill Village, and the Upper Mill dam in 1831. The Butler Mill, est. 1786, was one of the first industrial mills to open in Northampton.

1873

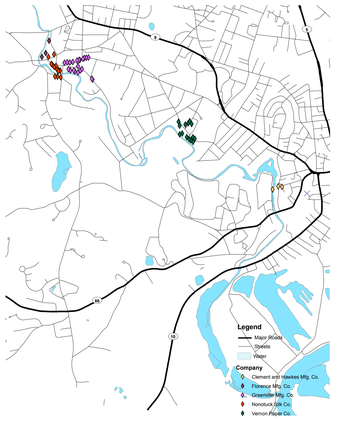

Figure 4: Northampton industry at the Nonotuck Mill site, Paper Mill Village, and the Upper Mill dam in 1873.

1884

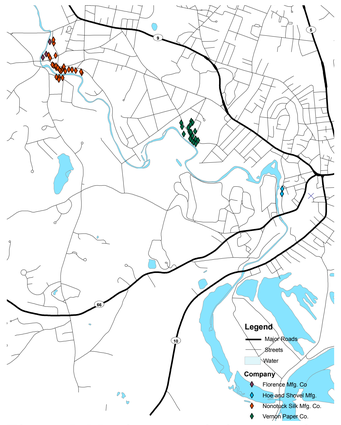

Figure 5: Northampton industry at the Nonotuck Mill site, Paper Mill Village, and the Upper Mill dam in 1884. Both the paper and silk industries were incredibly successful at this time.

1895

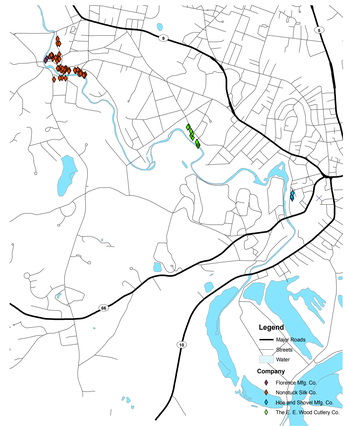

Figure 6: Northampton industry at the Nonotuck Mill site, Paper Mill Village, and the Upper Mill dam in 1895. By 1895, the paper industry had died out in Northampton. Silk, however, continued to thrive.

Map Series 2: Power Source Evolution 1831-1895

1831

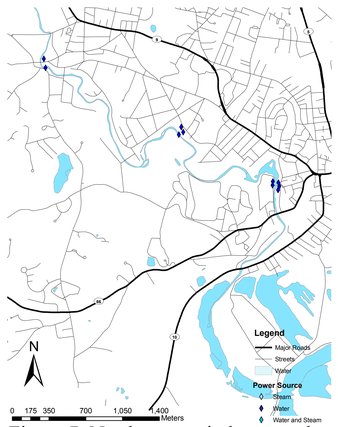

Figure 7: Northampton industry at the Nonotuck Mill site, Paper Mill Village, and the Upper Mill dam in 1831. At this time, all industry at these sites was powered by water.

1873

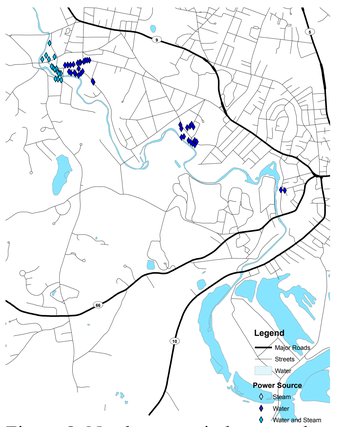

Figure 8: Northampton industry at the Nonotuck Mill site, Paper Mill Village, and the Upper Mill dam in 1873. At this time, industry had begun the transition to steam power.

1884

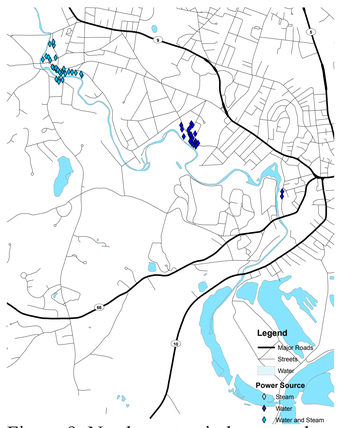

Figure 9: Northampton industry at the Nonotuck Mill site, Paper Mill Village, and the Upper Mill dam in 1884. At this time, water and steam as a combined source of power began to overtake water as the primary power source at these sites.

1895

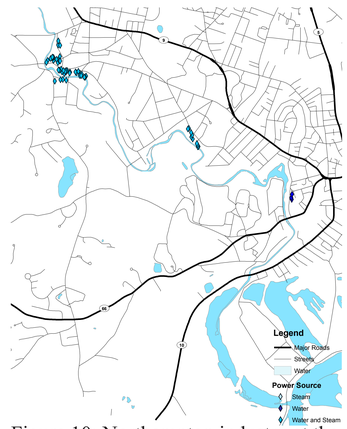

Figure 10: Northampton industry at the Nonotuck Mill site, Paper Mill Village, and the Upper Mill dam in 1884. At this time, water and steam as a combined source of power continued to overtake water as the primary power source at these sites.

ACKNOWLEDGEMENTS
I’d like to thank Reid Bertone-Johnson and John Sinton for their guidance and support, as well as Barbara Polowy and Elise Bernier-Feeley for their help finding appropriate map and archival resources.

SOURCES
Dean, Charles J. The Mills of Mill River. 1936. Typescript in Forbes HE844N+D34.
Hannay, Agnes. A Chronicle of Industry on the Mill River. Northampton, Ma: Smith College, 1936.