Story Mill Community Park – Restoring Ecological Services in an Urban Environment

R.R. McEldowney\textsuperscript{a}, Maddy Pope\textsuperscript{b}

\textsuperscript{a} Confluence Consulting, Inc., 1115 N. 7\textsuperscript{th} Avenue, Suite 1, Bozeman, MT 59771, U.S.A. (rmceldowney@confluenceinc.com)

\textsuperscript{b} The Trust for Public Land, 1007 East Main Street, Suite 300 Bozeman, MT 59715, U.S.A.

INTRODUCTION

The Trust for Public Land, in partnership with the City of Bozeman and other stakeholders, is creating a new 60-acre community park at the confluence of Bozeman Creek and the East Gallatin River in northeast Bozeman, Montana. The overarching vision for the Story Mill Community Park is a predominately natural park that retains the open space and scenic character of the site and that is inspired by the theme of rivers and water systems.

Because of its’ unique location at the confluence of these two waterways that drain the City of Bozeman, the site offers a rare and remarkable opportunity to combine ecological restoration with multiple other community benefits. Site degradation and loss of wetland and floodplain functions were caused by over a century of agricultural, industrial, commercial, and residential land uses. Existing wetlands occurred primarily on the South Parcel and were degraded by drainage ditches, placement of fill, and invasive plant species such as cattails, canary reedgrass, and Garrison creeping foxtail. Most recently the property was slated for intense mixed-residential development, but with the economic recession the property was sold through foreclosure in November 2011.

Recognizing the extraordinary potential of the site, The Trust for Public Land purchased the Story Mill property in December 2012 with the intention of restoring stream and wetland resources and creating a community park.

METHODS

The presentation will include a discussion of the stakeholder group and the importance of their involvement in the project. The presentation will also provide specific highlights and lessons learned from the implementation of the following 12 steps:

1. Development of an ecological conceptual model for the site
2. Refine goals/Performance metrics with project stakeholders
3. Collect, compile, and collate data
4. Determine design elements for use in three conceptual restoration alternatives
5. Development of an evaluation matrix for restoration alternatives
6. Complete conceptual restoration design of alternatives
7. Select one conceptual restoration alternative with stakeholders
8. Development of specific engineering and ecological design criteria
9. Create 75% plan set for review and comment
10. Finalize plans and specifications
11. Put project out to bid to construction contractors
12. Implementation of restoration actions

RESULTS AND DISCUSSION
The presentation will discuss the ecological goal and objectives as they relate to specific project outcomes. It will also include a discussion of specific elements that led to the ecological and social success of the project. Implementation of the project resulted in the following restoration outcomes:

1. More than doubled the amount of wetlands found on the site.
2. Restored natural fluvial processes along 2,460 feet of the East Gallatin River.
3. Reconnected 1.5 acres of floodplain on Bozeman Creek (Bozeman Creek Backwater Slough), and 1.6 acres of floodplain on the East Gallatin River.
4. Increased vegetative diversity.
5. Surface water quality improvements are assumed to be occurring, but have not been measured to date. Conditions for nitrogen cycling have been increased onsite through the creation of additional wetlands.
6. Increased public awareness of water quality related issues in the community.
7. Establishment of baseline data useful to MSU researchers interested in long-term ecological monitoring.
8. Creation of an outdoor living classroom environment for students, professors, and researchers.

ACKNOWLEDGEMENTS
The Trust for Public Lands sponsored and implemented this project with the help of many stakeholders. Key stakeholders in the project include the City of Bozeman; Montana Department of Environmental Quality; Montana Department of Fish, Wildlife, and Parks; Montana State University; Greater Gallatin Watershed Council; Gallatin Local Water Quality District; Trout Unlimited; neighbors, and numerous local water resource professionals.