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A River Runs By It: How Embracing a River Created Synergy for a Natural Areas Program and Interagency Environmental Education in Billings, Montana

Heather Bilden
Montana Audubon Center, hbilden@mtaudubon.org

Steven McConnell
City of Billings Parks, mcconnells@ci.billings.mt.us

Megan Poulette
Rocky Mountain College, megan.poulette@rocky.edu

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A River Runs By It: How Embracing a River Created Synergy for a Natural Areas Program and Interagency Environmental Education in Billings, Montana

Billings, MT was established in 1882 concurrent with the newly arrived railroad, which displaced the Yellowstone River as the area's economic engine. For a century, Billings was dominated by ranching, agriculture, mining and refining. As the only major city in 125,000 square-miles, it is now a hub of commerce, education, and medical services. It has recently become a center for natural resource agencies and NGOs. Demand for quality of life amenities and local expertise to provide them has contributed to the rediscovery of the river as an ecological and recreational gem. This interest has led to the development of a Natural Areas management program in city wildland areas.

Keywords

environmental education, urban land stewardship, urban riparian forest, urban land preservation

INTRODUCTION

Billings, MT was established in 1882 concurrent with the newly arrived railroad, which displaced the Yellowstone River as the area's economic engine. For a century, Billings was dominated by ranching, agriculture, mining and refining. As the only major city in 125,000 square-miles, it is now a hub of commerce, education, and medical services. It has recently become a center for natural resource agencies and NGOs. Demand for quality of life amenities and local expertise to provide them has contributed to the rediscovery of the river as an ecological and recreational gem. This interest has led to the development of a Natural Areas management program in city wildland areas.

CONTEXT

Throughout its development, the area between Billings and the Yellowstone River served as an industrial center. The river was largely forgotten and became the site of gravel pits to supply freeway construction. When construction was complete and the gravel pits were abandoned, Riverfront Park and the Montana Audubon Center (MAC) were formed out of the rubble. The MAC is now an established environmental education center and Riverfront Park is a crown jewel among Billings' parks.

Although not completely unaltered, the Yellowstone River is the longest free-flowing river in the continental US. Riparian cottonwood forests are sustained by spring runoff events followed by hot, dry summers. Research quantifying the demise of this ecosystem on dammed rivers led to the realization of how serendipitous it is to have a functioning ecological system proximate to the largest city in the area. With the unusually high concentration of ecologists, educators, NGOs, and agencies in Billings, Riverfront Park is poised to become a showcase for this forest ecosystem and its disturbance regime. Educators and academics have rediscovered this ecosystem, which has become the first major project in Natural Areas management in Billings.

Image 1. Students at the Montana Audubon Center explore the cottonwood forest adjacent to the Yellowstone River. Photo credit: Alina Garner

GOAL

There are two overarching goals for Billings' Natural Areas Program (NAP). One is to establish Riverfront Park as a preeminent site to experience a riparian cottonwood forest functioning as naturally as possible. The second is to use the NAP to advance environmental education, beginning with the river sites and extending to other habitats and ecosystem types in Billings. We aim to achieve these goals by involving volunteers and students in species documentation and invasive species removal in order to restore Riverfront Park to as near a natural condition as possible. We will follow these efforts with educational programming for the community and interpretive materials including a signed nature walk.

APPROACH USED

Collaboration between several partners has provided the strength and resiliency to guide the development of NAP. Over a decade ago, the Yellowstone River Parks Association purchased and began restoring a gravel pit adjacent to the river. This all-volunteer organization entered into a unique partnership with Montana Audubon, signing a 100-year lease to facilitate the use of their property as an educational center. Since 2008, the MAC has provided nature education to students of all ages. Its 54-acre campus is located adjacent to Riverfront Park on Billings' southside, adjoining the city's neighborhoods with the lowest socioeconomic status. For many nearby residents, the MAC and Riverfront Park provide the closest opportunity to recreate in nature. The City has formally designated Riverfront Park as a natural area, which provides opportunities for picnicking and hiking on paved trails as well as opportunities to explore the undeveloped natural areas. As the ecosystem is restored, we will involve the community in

documenting species during guided monthly bird strolls and self-guided data collection using apps. Signed nature trails will provide additional opportunities for people to learn about the riparian ecosystem.

Image 2: A student at the Montana Audubon Center shares her journal entry about cottonwood trees Photo credit: Alina Garner.

Another key partner, Rocky Mountain College (RMC), is an educational hub in Billings with a strong environmental sciences program. The college serves approximately 1,000 students, 50% of whom come from in-state and 40% of whom are the first in their family to attend college. In the midst of a large city, RMC faculty recognized the singular opportunity that Riverfront Park provides for hands-on training in environmental monitoring. In the fall of 2019, RMC students will establish monitoring plots in a cottonwood stand that has been targeted for invasive species removal. Students will be involved in long-term monitoring of the riparian forest throughout Riverfront Park as restoration efforts continue. RMC faculty have also worked with the Yellowstone County Weed District to coordinate an annual invasive species field day at Riverfront Park. In 2019, this event hosted eight educational booths and drew over 100 students from local middle schools.

RESOURCES

Key seed funding for NAP was supplied by a Montana Department of Natural Resources Program Development Grant. The contributions of partner organizations are numerous.

Management oversight is provided by staff from the City of Billings Parks, Recreation, and Public Lands Department (PRPL). Invasive species control is provided by the Yellowstone County Weed District. Monitoring will occur through class projects by RMC students and community programs coordinated by the MAC. Maintenance and special projects will be provided by volunteers organized by the PRPL Community Outreach and Engagement Coordinator. Grants will be sought to provide the signage and continued work on removing invasive trees and shrubs. Educational programming will occur through the MAC and local schools.

KEY RESULTS

We expect the restored natural areas at Riverfront Park will become the epicenter for experiencing an intact, fully functioning riparian cottonwood forest ecosystem. The site will be signed and interpreted such that lay audiences can appreciate its unique qualities and better understand concepts such as “active management,” “disturbance processes,” and “invasive species.”

We also expect that Riverfront Park will be the site of publication-quality research and monitoring that will inform sciences on topics as diverse as faunal response to vegetation changes that result from riparian forest restoration, best methods for controlling currently understudied invasive species, and vegetation dynamics in treated vs untreated invasive shrub-dominated riparian areas.

Riverfront Park has served as a catalyst for developing a natural areas program that will extend to other ecologically important areas throughout the city. These natural areas will provide places of repose for citizens of a bustling city as well as educational opportunities for students of the adjacent elementary and middle schools.

ADDITIONAL RESOURCES

www.mtaudubon.org/center