Interpreting An Urban Riparian Forest

By Vincent J. Cotrone, Penn State University

Introduction

Forested riparian or streamside areas provide many benefits including filtering runoff of pollutants, promoting the uptake of nutrients, preventing erosion, providing canopy, shade, and leaf food for aquatic habitat, providing wildlife habitat and migration corridors, and providing downstream flood control by reducing stream velocity. In community settings, riparian areas are critical for the protection of water quality, flow regime, habitat, and recreation. Meanwhile, the vegetation in riparian areas is often viewed as an un-kept flood hazard, that traps debris and slows stream flow. Many urban and suburban residents have an overall philosophy that clearing vegetation and straightening streams would prevent flooding by allowing a "clear straight shot."

Before the word riparian became popular, the Wilkes-Barre Pennsylvania Riverfront Parks Committee, a grassroots organization, was working hard to protect, manage, and interpret a 91 acre urban floodplain forest along the Susquehanna River located within a four block walking distance of the city's downtown district. Historically, the city had maintained a river common as public space since 1773. In 1922 the city of Wilkes-Barre created Kirby and Nesbit Parks on the westside of the river, which were designed by the famed Olmsted Brothers firm. This manicured park landscape was destroyed by the flood of 1936. The park was then split by the construction of a levee system. This levee system left 91 acres along the river to revert back to a natural forested state.

In the late 1980's, various organizations became interested in cleaning up the river and developing the floodplain into a recreation area. The riparian forest that nature restored over the past 50 years since the levee system was built was now in question. The initial park advisory committee had many heated discussions. One faction wanted to restore the park to the historic Olmsted design, while another wanted to do nothing for fear of disturbing the critical wildlife habitat. As a result of such polarized views, the committee began a master planning process for the area, which brought together citizens from all walks of life. The committee wanted a plan that would encourage citizens and visitors to use the riverfront, while respecting and enhancing the natural resources and ecological integrity of the floodplain. The plan would also concentrate on providing opportunities for visitors to learn about the natural and cultural history of the place.

Riverfront Park can be enjoyed again, as it was in 1922.

Master Plan Issues

There were many issues that confronted the committee in developing a public-driven master plan. One of the largest floodplain issues was a common fear of flooding. In 1972 hurricane Agnes dumped 12 inches of rain on the region causing the Susquehanna to break through the levee system, flooding Wilkes-Barre and surrounding communities. Many of the area residents lived through that devastation and now view the river as a menace that should be controlled. When the river rises to flood stage and overlows its banks, the community and local media give the river increased attention, fearing another break in the levee that protects them. Unfortunately, the same levee system that protects the local residents also serves to disconnect them from the natural resource that lies within walking distance of their downtown. The development of the levee system in the 1930's created the 91

Volunteers helped clean the river banks and restore the Olmsted era reflecting pond.

acre riparian forest, but its physical landscape also serves as a barrier to its use and understanding.

Public perception was another major hurdle in the development of a riverfront park that respected the ecological integrity of the floodplain. Water quality is impacted by acid mine drainage from the region's abandoned coal mines and combined sewer overflows. Most view the river and adjacent forest as a polluted, dirty, and un-useable area that is often flooded. Contrary to public view, the river is teaming with aquatic life such as mayflies, stoneflies, and caddisflies which serve as key indicators of a healthy river. Public perceptions of the riparian forest were that it was unkept, un-safe, caught flood debris, and slowed flood waters causing larger floods that might come over the levee. Natural meadow succession areas were thought of as tick and snake breeding grounds, and un-maintained fields that someone may set on fire, but could be used as athletic fields if someone would just mow them. The public also questioned whether the area was a true park since it contained no ballfields or play grounds and was not properly maintained for recreational use. Also, the issue of a natural forest setting becoming habitat for criminals was an issue. Although there were no reported crimes committed in the riparian forest, this issue was one that worried parents and fueled a debate to clear much of the forest, specifically the understory, which had become inhabited by Japanese knotweed *(Polyganum cuspidatum)*, an exotic invasive bamboo. There was a concern that the invasive Japanese knotweed would take over the understory, preventing woody regeneration, and crowding out a diverse mix of native herbaceous plants. If the forest overstory were to die or be removed, the fear was that the area would become one large thicket of bamboo, providing for little habitat and soil stability.

Another issue affecting the park's development was the city's financial status. Many in the city could not understand why we wanted to develop another park while the downtown district struggled to survive. The city also lacked either the parks department personnel or interest in developing and maintaining another large park. Luckily, the lack of financial resources to develop another park actually worked in favor of protecting the natural floodplain forest by preventing conversion to active recreation fields.

Changes in the city's political climate affected implementing the park master plan and protecting the existing riparian forest. Following the completion of the master plan, the Riverfront Parks Committee was incorporated as a legal non-profit, initial trail development began, and a new mayor was elected. Gaining political support for a park project that was initiated by a former mayor continues to be critical task for the non-profit committee.

Education and Partnerships

So, how did a small non-profit group overcome these common floodplain issues and obstacles to create a natural riparian park. The answer lies in education and partnerships. As many in the field of community forestry have learned, the key to protecting natural resources in our communities is educating the public about their importance and value. Without a strong effort in this area, the committee would have disbanded long ago, and the forest removed for flood control.

The primary mission of the committee was to educate the public and build awareness of the value of the riparian forest. Much of this began during public forums that were held during the park's master planning process. These efforts were soon followed in 1995 by a successful partnership with the local sanitary authority. The sanitary authority was interested in convincing the public that it was no longer polluting the river. With funding from the sanitary authority, a riverfront parks naturalist position was created. Initially, it was just a summer position, but changed to a year

Volunteers have done much work in Riverfront Park.

round position in 1997. The naturalist worked to get people of all ages to come to the levee and discover the natural floodplain forest. School groups, day cares, scouts, 4-H clubs, senior citizen groups, bird watchers, hikers, bikers, runners, and canoers all began requesting programs and using the park regularly.

Environmental education in the park was critical in changing public perception about floodplain vegetation, crime, and the river. The park naturalist and committee members also taught in local schools and spoke to various organizations such as the chamber of commerce, downtown businessmen's association, and rotary clubs. As part of teaching, the Riverfront Parks Committee made a conscious effort to incorporate cultural and historical significance into education about the ecology of the area. Fortunately, the area contains several remnant structures of the Olmsted-designed park of the 1920s, like the original caretaker's cottage. Through various partnerships with master gardeners, eagle scout candidates, and local contractors, the caretaker's cottage foundation has become an interpretive native perennial garden, the reflecting pool has been cleaned out, resurfaced and now holds water, and an observation deck and an outdoor classroom are presently being created from an old gazebo foundation. Due to periodic flooding, almost an annual spring event, the historic structures can not truly be restored as some had initially suggested, but through signage and tours the sites are interpreted for a public that is interested in local history.

In addition to the diverse programming that the park naturalist provided regularly, the committee has worked hard to develop interpretive signs, brochures, newsletters, and maps for the public. Initially, signs were used to mark the Olmsted Trail and Warrior Path as well as historic structures. Other signs explained why the meadow was not mowed or planted in turf, or how the riparian forest helps the Chesapeake Bay. Through a partnership with the YMCA, chamber of commerce, and local colleges, a Run/Walk/Bike brochure was developed that illustrates distances on loop trials through the floodplain forest. Another flyer developed by local natural resource professionals, professors, and the Audubon Society focused on natural history, geology, wildlife, vegetation, and aquatic habitat. Most recently, a full color brochure was developed with community forestry grant funds from the USDA Forest Service that explains the unique natural park and the committee's work, while using a new GIS-produced trail map and photos to market the park to potential users and project funders. Our interpretive signs, user brochures, and maps have gone a long way to increase public awareness, use, and stewardship of the riparian area.

Participation and Involvement

The next critical component in protecting and restoring natural systems in urban areas is community involvement. With the strong negative perceptions of riparian areas that exist, it is extremely important to involve the public in the planning and management of these

areas. This is especially true in any public area where there is a sense of community ownership. Public areas can also serve as a demonstration to educate people, many of whom own property adjacent to streams, lakes, and rivers.

In the case of the Riverfront Parks Committee, community involvement has continued to take many forms, but most important are volunteers working in the restoration and maintenance of the park. Volunteers were initially utilized for trash cleanups, cutting knotweed, mowing small turf areas, and assisting the naturalist in programming. It soon evolved to trail building, the removal of over 1500 tires from the Susquehanna river, storm damage cleanup, native trees and shrub plantings, restoring the 1923 reflecting pool, interpretive gardening around historic remnant park structures, planning public festivities along the river, newsletter and brochure development, public speaking, fund raising, and grant writing.

Each occasion in which the parks committee involved volunteers became another opportunity to educate and inform people. For example, as corporate volunteers assisted with trail work during a United Way Day of Caring they learned that the riparian forest serves as critical habitat for migratory and nesting birds that use the Susquehanna as a flyway. These volunteers are now park users and supporters of efforts to protect the area. Many continue to volunteer for monthly cleanups, or large projects such as our Stream Releaf project, that supported the planting of trees and understory shrubs. Without diverse support from the community, the riparian area would be viewed as just another "cause of the environmentalists."

Partnerships

Besides the volunteer activities, the committee in partnership with a local area foundation, environmental organizations, and civic associations strives to create events and festivities that bring people back to the river. One such event, the Tri-Fun-A-Thon involves a 10K run from the city through the floodplain forests trails, a six mile bike ride up river, and a canoe or kayak race back down to the park. Individuals and teams take part in this race to help raise funds for the local foundation. Although the focus of the day is the race, the committee uses this opportunity to provide environmental education such as a live birds of prey program, guided nature hikes, and water quality workshops. Other large events have included Rivers Month celebrations and the hosting of the 1993 and 1999 Susquehanna Sojourn, a six day canoe trip sponsored by the Alliance for the Chesapeake Bay. The sojourn is a way to get people on the river teaching the valuable message of stewardship. During these events the riparian forest saw over 100 campers and served as a demonstration site to discuss the importance of forests to the health of the Chesapeake Bay.

One of the most successful accomplishments of the committee's work has been the influence it has had on the US Army Corps of Engineers, county engineers, and planners during recent planning and construction that is increasing levee height and width. As a part of the levee raising project, trees in the floodplain are being saved instead of cleared, a 13 mile greenway trail along the levee will connect communities to each other and the river, and interpretive signage addressing the areas' cultural, historical, and environmental connections to the river will be incorporated into the trail system.

Throughout the planning process for a new city riverfront, the majority have stressed a strong support for maintaining the natural riparian area. There is a growing realization that this natural floodplain forest has an educational and recreational role to play, improves the quality of life for existing residents, and can even have a positive effect on the economy by attracting visitors and new businesses.

Safety and Japanese Knotweed

The issue of park safety has continued to surface over the years and is presently being solved through a unique partnership between the committee and a local neighborhood crime watch. The local crime watch was seeking higher visibility and was willing to provide volunteer bike patrols. The committee has also developed good relationships with local police that have led to patrolling by bike police and a newly introduced horse mounted unit. Both the trail visibility and forest regeneration issues are being solved as a result of experimental herbicide treatments of the Japanese knotweed understory that were started in 1994. These treatments demonstrated a low maintenance, no mow trail to city park managers, and a safe effective control of invasive plant material in a forest understory to environmentalists and other users. With the help of an International Society of Arboriculture certified arborist and USDA Forest Service grant funds, over 15 acres of Japanese knotweed, mostly along trails, have been converted to native herbaceous vegetation and woody regeneration.

Conclusion

Protecting and restoring urban riparian areas can not be accomplished merely with new regulations, new initiatives, or new program dollars. Unless public perceptions about riparian areas are changed from flood hazard, overgrown, unmaintained, and un-safe places to ones of ecological dynamics that affect water quality, habitat, and stream velocity, riparian forests will be lost. Only through community based environmental education, sustained community involvement, and diverse partnerships can we begin to set the stage for new regulations or programs that focus on protecting and restoring urban riparian forests.