



INTRODUCTION

State of the Bronx River 1.1

Context 1.2

The Plan 1.3

Target Audience 1.4

The Bronx River Ecological Restoration and Management Plan is a result of collaboration by the stakeholders represented on the Bronx River Alliance Ecology Team. It will serve to develop a framework that will ensure a consistent and comprehensive approach to restoring wildlife habitat and water quality in the lower Bronx River. Increasing focus on restoring wetlands and wildlife habitat, as well as on improving storm water capture, requires technical and scientific guidance to ensure informed and coordinated implementation. This plan details a consensus-based, comprehensive approach to improve the environmental health of the river by setting overall restoration goals, creating a context for evaluating future restoration projects and strategies, and addressing pollutants that undermine habitat restoration.

The plan stems from a long history of activism and community-led restoration and seeks to organize and focus future work that will improve this urban river, which is in such need of rehabilitation. The lower Bronx River consistently appears on the New York State Department of Environmental Conservation (NYS DEC) List of Impaired Waterbodies—the 303d list (available at <http://www.dec.state.ny.us/website/dow/part1.pdf>). It suffers from high bacteria loads and low dissolved oxygen (DO) levels. Humans have so altered the watershed that historically fed this river that the natural connections between land and water have almost been erased. However, problems alone did not motivate this effort. It is the immense potential of the Bronx River as a recreational, educational and ecological resource that inspired the communities around it to call for its improvement. Their restoration activities have already made a difference.

THE STATE OF THE BRONX RIVER

During the nineteenth and twentieth centuries, human activity significantly altered the Bronx River and its watershed, degrading its health and biological diversity. Previously a sinuous, forest-lined waterway that supported a great estuary of complex salt marshes, today much of the river has been straightened, its forests paved and its salt marshes filled with concrete. Though some fragments of open space and forest still exist within the river corridor, most of the lower Bronx River watershed has been urbanized. The result is a river that rises and falls quickly because storm waters flow to it not through the soil and tributaries, but through pipes that deliver polluted water directly from surrounding roads and roofs.

Over the past century, planners and engineers used rock and concrete to force the riverbanks into a straight line that matched the lines of nearby highways and railroads. As a result, humans exchanged the environment's intricate complexities and diverse habitats for faster, more efficient movement of people and goods. Some of the goods that people carried were plants from distant places. Prized either for beauty or utility, some of these plants broke loose of human control and spread in the natural environment, forcing out the native grasses, trees and shrubs that once thrived along the river and provided shelter to the river's resident wildlife.

An understanding of current conditions on the Bronx River is an important step toward preserving and improving the river's health. The first section of this plan therefore provides a more detailed discussion of what is currently known about the ecological health of the Bronx River.

CONTEXT

Work done today on the Bronx River is the result of both community activism and agency initiative. Much of the planned ecological restoration for the Bronx River will be carried out as part of other ongoing studies and projects. Recommendations in this plan reflect these efforts and must be viewed in the context of other planning efforts and projects in the watershed. The following are especially relevant:

Bronx River Alliance Greenway Plan

The Bronx River Greenway is an eight-mile bike/pedestrian path and linear park in the heart of the Bronx that will provide greater access to the river itself, and bring green space to communities that have long lacked such resources. Working in partnership with the NYC Parks, the Bronx River Alliance has developed a plan that conveys a collective vision of the greenway and a framework to guide its realization. The plan describes elements of the greenway which are already moving forward and identifies issues that remain to be resolved to create a complete and continuous route. The Greenway Plan sets out guidelines for ecological performance intended to ensure that the greenway enhances and protects the ecological functioning of the river (Bronx River Alliance and Pratt Center for Community Development, 2006). These principles and practices are also reflected in this Ecological Restoration and Management Plan.

Bronx River Conservation Crew

The Bronx River Alliance Conservation Crew maintains a full-time presence on the river, monitoring river conditions and carrying out ecological restoration projects, in collaboration with Alliance partners, that improve water quality, stabilize the riverbanks and improve habitat in and along the river. Recruited from the local community and trained through a partnership with Sustainable South Bronx, crew members serve as the eyes and ears for the river on a full-time basis. The crew assesses the river corridor and greenway weekly for problematic conditions, and maintains river navigability for small boats and access to the riverbanks by foot. The crew is a primary agent for carrying out small-scale restoration work.

New York City Department of Parks

The New York City Department of Parks (NYC Parks) manages approximately 981 acres of parkland within the Bronx River watershed. Within the river's parkland buffer, NYC Parks is assisted by the Bronx River Alliance. The NYC Parks Natural Resources Group (NRG) works to develop management strategies aimed at preserving and protecting New York City's natural areas. NRG works closely with the Alliance to plan and execute restoration activities within the river corridor. NRG substantially contributed to this plan.

New York City Department of Environmental Protection Bronx River Long Term Control Plan

The Bronx River is one of two pilot project areas in the New York City Department of Environmental Protection (NYC DEP) Urban Watershed Project. Technical analyses for the Bronx River have been completed, and a draft Waterbody/Watershed Facility Plan has been developed. Overall, the NYCDEP aims to complete facility plan development and comprehensive watershed planning by 2007.

New York City Soil and Water Conservation District Soil Survey

The NYC Soil and Water Conservation District (SWCD) Soil Survey is a pioneering study of urban soils, including a citywide reconnaissance soil map, a series of intensive soil surveys and special research projects. The survey is a cooperative effort of the U.S. Department of Agriculture – Natural Resources Conservation Service, Cornell University and SWCD. An intensive survey is planned for the Bronx River watershed. This survey will characterize soils to a level of detail that will enhance the quality of future restoration efforts, especially those that aim at improving infiltration of storm water and reducing contaminants.

New York State Office of the Attorney General

Through its Environmental Protection Bureau, the Office of the Attorney General (OAG) enforces laws that prevent environmental damage, sometimes through prosecutorial action. The OAG has investigated three cases of pollution to the Bronx River that resulted in settlements with the Wildlife Conservation Society/Bronx Zoo (WCS), New York Botanical Garden (NYBG), and City of Yonkers. In 2001, WCS agreed to implement a pollution abatement program and environmental benefit projects in response to claims that WCS was illegally discharging animal wastes and other pollutants into the Bronx River. A 2002 OAG settlement with the NYBG stopped the flow of pollutants, including pesticides, from NYBG's greenhouses into the river. Another OAG investigation found that pipes in the City of Yonkers had been illegally discharging thousands of gallons of untreated sewage each day into the Bronx River since 1999. In response to this case, a State Supreme Court judge ordered the City of Yonkers to stop the discharge of raw sewage by repairing improper pipe connections. Discharges like those cited above cause severe detriment to Bronx River water quality. These OAG actions against polluters help to clean and restore the Bronx River through enforcement, which provides a necessary complement to the physical restoration and environmental policy changes presented in this plan.

U.S. Army Corps of Engineers Bronx River Basin Ecosystem Restoration Study

The U.S. Army Corps of Engineers (ACOE), New York District, in partnership with Westchester County and NYC DEP, is engaged in a study to devise a plan that will provide ecosystem restoration measures for the Bronx River basin. The study will evaluate several measures to provide ecosystem restoration including stream bank stabilization, stream channel realignment and/or redirection, storm water management, sediment and nutrient detention, restoration and/or creation of riparian wetlands, and fish passage creation. While conducting the study, the ACOE plans to fast-track one restoration site in the Bronx (Shoelace Park). All projects recommended for that location should be coordinated with ACOE so that efforts are not duplicated.

Through their work, agencies like NYC Parks, NRG, NYC DEP, NYC SWCD, and ACOE will continue to play major roles in protecting and restoring the Bronx River's wildlife habitat, water quality and soil quality. Alliance partners monitor these efforts, participate in stakeholder groups and ensure that the agencies are coordinating with each other and with the many projects taking place along the Bronx River Greenway.

THE PLAN

Through a coordinated effort with many of its partners, the Bronx River Alliance produced this Ecological Restoration and Management Plan in order to guide the environmental restoration and protection of the Bronx River corridor and watershed. The information and recommendations presented here are intended to serve as a resource for Alliance partners by compiling ecological data and restoration ideas into one comprehensive workplan. The recommended actions are the result of coordinated assessment of current conditions, ecological objectives, and opportunities to meet the goals of this plan.

In order to provide a working guide for Alliance partners as well as a useful document for other practitioners, advocates and interested parties, this plan will:

- ☞ Describe the state of the Bronx River at the start of the twenty-first century with specific attention to ecological problems
- ☞ Establish sound, achievable ecological goals
- ☞ Identify opportunities for restoration of the river
- ☞ Suggest priorities for restoration projects, management and policy

TARGET AUDIENCE

More than 80 partner organizations make up the Bronx River Alliance (see **APPENDIX L** for Partner List). These partners engage in ecological restoration and management work both along the river banks and within the watershed, from organizing volunteer garbage clean-ups to designing and executing major salt marsh restorations to advocating for waterfront access to coordinating large-scale watershed studies. At its most basic level, this plan is for these partner organizations; the Alliance can look to this plan as a guide for ecological work over the next five to ten years. The opportunities and recommended actions laid out here will supply the Alliance and its partners with direction and a foundation for new ideas on how to improve the health of the Bronx River watershed.

At another level, partners can share this plan with others to illustrate the innovative and collective effort behind restoration of the Bronx River. The Alliance depends on the continued support of public officials, policy makers and local, state and federal agencies to continue toward the goal to protect, improve, and restore the Bronx River corridor and greenway so that they can be healthy ecological, recreational, educational and economic resources for the communities through which the river flows.