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Bronx River Restoration: Report and Assessment

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Teresa Crimmens, Bronx River Restoration: Report and Assessment

1. Background

A. New York City's Urban Ecosystem

For millions of years, the geographic location that we now call New York has been subject to shifting of the earth's plates and glacier bombardment. These occurrences have resulted in a diverse meshwork of land, ocean, marshes, bays, rivers, harbors and islands that make the area now known as the New York/New Jersey Harbor Estuary a unique ecosystem. During the land's transformation into what we see today, it ecologically seduced thousands of species into choosing New York's tress, soil and waters as their habitat. Abundant juxtapositions of land and water create an environment where the plant, animal and fungal New Yorkers are supported by lush food webs. Within the last few centuries, the area has experienced a population explosion with respect to one species in particular: *Homo sapiens*. If by no means other than their mere presence, humans have altered the land and water of this region to a point that it no doubt bears only slight resemblance to the geographical space it was before man began to aggregate en masse on its shores. One alteration that has harmed countless species is the loss of 75% of New York's wetland resources. Another is the constant pressure of human development (buildings, roads etc.). However slight the resemblance of today's New York to the New York of 500 years ago though, it is one that may still be recognized and cherished as the native ecosystem that survives among, between, under and above the concrete and steel of the urban habitat in which human New Yorkers spend the majority of their lives. Various species of birds make their homes in the thousands of

acres of remaining woodlands that once characterized the land. Other avian species take refuge among 5 islands in the New York/New Jersey Harbor. More than two-dozen rare plant species take root in New York and New Jersey as well. While most may still think of New York only in the context of high rises, taxis and bridges, a growing number have begun to take note of the damage that human enterprise inflicts on the native ecosystem as well as what can be done to stop that damage. 1. See Appendix I below.

B. Water and Ecosystem Quality in the Bronx River

Waterways have historically been used and abused by humans for their transportation value as well as an energy resource. People routinely re-route rivers and pave over streams. New York, with its multitude of waterways, has been hard hit by people's passion for the permanence of concrete. Intact waterways that provide home to some and drinking water to all New York inhabitants do not often exhibit the same level of purity that they may have at one time. Environmental Protection Agency water quality assessments show the diminished quality of area rivers and lakes. Let us focus on one such river that runs throughout the Bronx—The Bronx River. The EPA lists “pathogens” as the parameter of concern in the Bronx River and “CSO’s” (or combined sewer overflows) as the potential source of impairment. Combined sewer systems are remnants of the country's early infrastructure, and are therefore a particular problem in the northeast. These sewers collect rainwater, runoff, domestic sewage and industrial wastewater in the same pipe. Normally, all of this water would be transported to a sewage plant, treated and released into another body of water. However, the systems are designed to overflow into nearby streams and rivers when the volume of the wastewater exceeds that of the system itself. Such overflows are caused by heavy rainfall or

snowmelt; hence, CSO's are often referred to as "urban wet weather" discharges. CSO's present an enormous threat of contaminating rivers with pathogens since they contain human and industrial waste and toxic materials. Fecal contamination of water alone can introduce *Salmonella*, *Shigella*, *Leptospira*, enteropathogenic *Escherichia coli*, human enteric viruses and parasitic worms. Just a few affects of these pathogens are food poisoning, typhoid, infection of the kidneys, cholera, urinary infections, and tuberculosis (Mason, 17-19). Of course, these are only the affects that these pathogens have on humans—who are most likely subjected to relatively low levels of these toxins since they are land dwellers whose water is often filtered to some degree. Imagine the impact CSO discharges must have on the plants and animals living adjacent to the sewer or in the Bronx River into which combined sewer wastewater routinely flows. The EPA lists human use, fish and wildlife consumption, ambient water quality with respect to four conventional pollutants and wetland loss as being of "more serious" concern in Bronx waterways 2. See Appendix II below.

C. History of the Bronx River

Named for early European settler Jonas Bronck, the Bronx River flows for 23 miles through Westchester and the Bronx (it's surrounding lands encompass 56.4 sq. miles) before emptying into the Long Island Sound. As recently as the early 1800's the Bronx River Watershed served as home to dense collections of oak trees and wildlife, and as a migration route for birds; it's flow provided energy for the city's mills. By the 1840's a trend of declining water quality had begun with the building of a local railroad line. In 1907, construction began on the Bronx River Parkway that now runs north and south 23.9 miles through Westchester and the Bronx. A 1909 Bronx Parkway

Commission Report stated that “despite all the efforts of the Commission” the river had “suffered considerable injury in its natural features”. Certain requirements were implemented in the design of the Parkway; for example, an effort was made to preserve and care for existing trees that surrounded the roadway even to the extent of reforestation. The attempt to retain natural space around the parkway was aimed at attracting the public to use portions for recreation, which was to “spark interest in the parkway”—an interest that today commonly overshadows interest in the river for which the parkway was named. In 1950, when construction of the Bronx portion of the parkway (having grade separations and six 12-foot-wide lanes instead of four 10-foot-wide lanes), the Westchester section was widened from four to six lanes. Hence, following expansion of automobile ownership and technical advancements was the physical growth of roadways and therefore the shrinking of natural features of the Bronx River Watershed 2&3. See Appendices II&III below

D. History of Restoration Efforts

The idea of lending a helping hand to the earth’s repair of what human development helped to destroy is not a new one. Indeed, soon after its construction began, the Bronx Parkway Commission Report of 1909 expressed an interest in “preserving the river from further deterioration”. While being built, reforestation was implemented in order to re-create the picturesque watershed lands for the enjoyment of drivers. In 1991, the portion of the Bronx River Parkway (which included the Bronx River Parkway Reservation) between the junction with the Sprain Brook and the Kensico Dam was listed on the National Register of Historic Places, which required improvements. 1997 marks the beginning of the most aggressive and all-encompassing

restoration effort with the formation of the Bronx River Working Group. The volunteer group depends completely on the participation of the community, as the government does not force action. Initiatives of the Bronx River Working Group include restoration, stabilizing erosion, reclaiming wetlands and floodplains, improving habitat and increasing public access to the river. Adopt-The-River is a public outreach program (started by the NY Department of Parks and Recreation) that provides funding to community groups. In 1999, some of these groups worked on re-opening trails along the river, removing debris from the river and restoring wildlife habitat. Some other groups working to restore and protect the river are New York City Restoration (founded and run by Bette Midler), Fordham University Community Service Program, New York State Department of Environmental Conservation, Westchester County Department of Environmental Planning and the United States Army Corps of Engineers 4. See Appendix IV below.

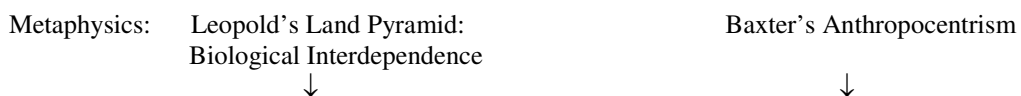
E. Current USACE Restoration Project

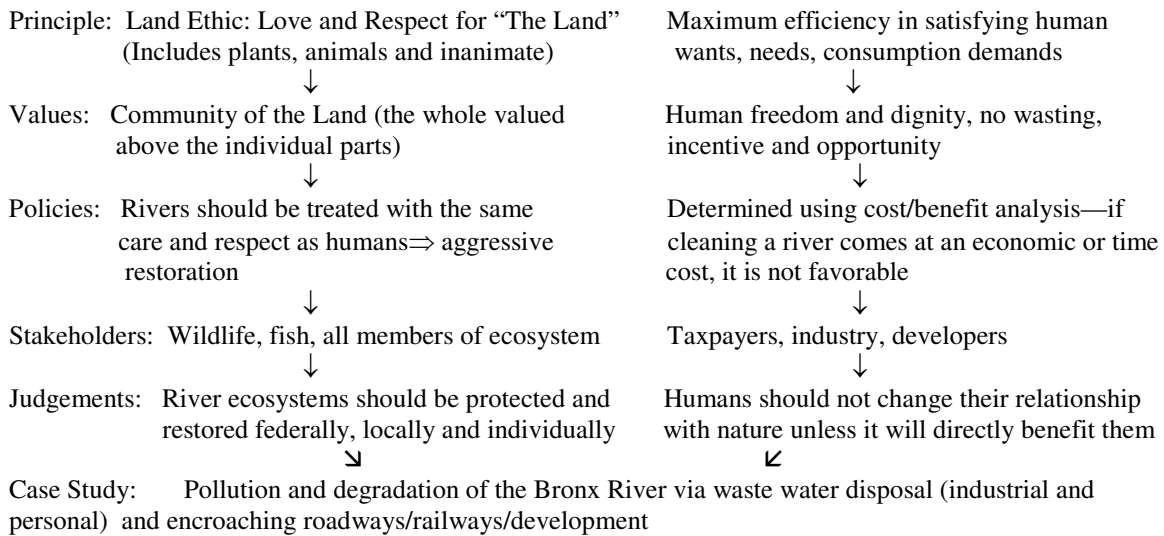
In 1999, the US Army Corps of Engineers studied the Bronx River area in an attempt to find possible solutions to flooding and environmental degradation. As a result of that study, the USACE developed a more in-depth study of the river that is scheduled to begin in 2001; the estimated cost of the study is approximately \$1.5 million. The New York State Department of Environmental Conservation is to be the local sponsor for the project. Damage resulting from flooding is the USACE project's main concern as flooding results in flooding, erosion, habitat loss and CSO's. Eighteen potential sites have been identified for ecosystem restoration. Also, a basin-wide watershed

management plan has been designed to act as a structural framework for restoration activities 5-7. See Appendices V-VII below.

2. Conflicting Values and Uses

The problem of any human-inflicted environmental damage boils down to a conflict of interest between humans and the earth. In some cases this conflict is a purely biological one—all species are subject to the harsh realities of the food chain. As organisms strive toward their ultimate goal of growth and reproduction, other organisms are inevitably sacrificed as food sources or less able food source/mate competitors. However, through their evolutionary ascension, humans acquired increased knowledge and therefore desires beyond the purely biological. An example then of an environmentally degrading situation borne completely out of a non-biological human desire is the cutting of forests for paper production. Humans certainly do not *need* paper in order to survive and reproduce, but they have (through the sharing of educational advancements/technology \Rightarrow paper use) found a use for paper that has ultimately heightened their fitness as is evidenced by the exponential growth of the human population. Regardless of the reasons, humans have a unique relationship with the earth that usually benefits the former at expense to the latter. As the particulars of this abusive relationship have become more mainstream, growing numbers of humans debate the ethical nature of their species' interactions with nature. Below is a diagram of the components of one such debate concerning the Bronx River:





For centuries, the heavy influence of the right-hand side of the above diagram has led to pollution and loss of land in the Bronx River Watershed. Only within the last few decades have people begun to not only see the economic and health problems brought on by the degradation of the river, but also to see the natural world as having worth in and of itself. A similar example of two major conflicting schools of thought can be seen in the issue of “polluting” the atmosphere with carbon dioxide leading to global warming. It has been easier and cheaper for car manufacturers and other industries to continue emitting the greenhouse gas rather than investigating alternatives. Demand for inexpensive products that make life more convenient on the part of the consuming public have influenced car manufacturers and other industries to maintain the status quo with regards to greenhouse gas emissions rather than investigating alternatives. Since humans are major players in environmental alterations, the most popular environmental outlook will determine action.

3. Value Frameworks for Policy Making

Various thinkers have sought to lay the groundwork for an environmental ethic that best reflects understanding of morality. One such philosopher is Aldo Leopold

whose metaphysical view is that of the “Land Pyramid”. He asserts that the moral community encompasses “The Land” in its entirety—this includes animals, plants, soil, water, rocks etc—since there is a continuous and cyclical flow of energy through all elements of The Land. Therefore, Leopold argues that one should love, respect and admire The Land (just as one would any other moral being) for no reason other than its existence. Just as one would be concerned if a certain population of humans became sick, one should also attempt to sure the different components of nature when they become damaged—especially when that damage has been inflicted by humans. In the case of the Bronx River, Leopold would favor aggressive restoration of the river as well as increased education on the watershed area as well as the environment in general. Environmental education, says Leopold, should begin to value some “obligations to land over and above those dictated by self-interest”(Van DeVeer, 145). According to him, a true change in the public’s outlook on the environment can come only with the involvement of mainstream philosophy and religion. Only when humans develop a loving relationship and conscious interdependence with The Land, will they begin to alter their own lifestyles as radically as is necessary to reverse the current trend toward natural suicide. As Leopold strongly acknowledges the fact that no true change or reparation of The Land may come without the wholehearted support of the public, his policies regarding restoration of the Bronx River would focus just as strongly on education of Bronxites and politicians as on physical clean-up of the site.

4. Policy Recommendations

The following policy recommendations measure up to the Leopoldian Land Ethic, but are designed to touch the everyday life of people on a level more basic and

tactile than one that aims only at changing their ways of thinking. The hope is that inviting people to better their own lives with environmental awareness will promote deeper thought into a logical and spiritual relationship between humans and the earth. In order to change attitudes about our relationship with the earth, each individual must truly experience the earth on a regular basis, for as the saying goes: “That which is out of site is out of mind.” Many people would not likely condone or be willing to tolerate the kind of natural damage done to the Bronx River. However, if the river itself is not a part of people’s lives to be seen and enjoyed, its plight will be of little concern. I see some simple as well as some complex implementations that could work toward the end of making the river more a part of people’s lives.

Policy #1: Erect attractive signs in places that may be seen from the roadway/sidewalk that invite people to explore the shores of the river. In most places the Bronx River looks like an ominous place lying dark and tree covered beneath the roadway. Signs can work to legitimize the area as one for recreation in the minds of people who stick to the beaten path. The intended outcome of such signs would be a heightened interest in the area. If people consciously thought of it as part of a public park, they may be more inclined to respect it and care for it.

Policy #2: The paths hugging the shore of the river should be patrolled by police officers. Again, this would lend legitimacy to the area by showing that the city regards it as a place to be protected. The increased feeling of safety will make people feel more comfortable.

Policy #3: Abandoned lots/warehouses that line the river (especially in the South Bronx where virtually no river access exists) should be purchased by the city for use by

the parks department. Opening access to the river will bring it into public view instead of allowing it to remain hidden behind scrap yards. When people have the opportunity to at least see the river, they can begin to regard the river itself as part of their neighborhood. In addition, any amount of added green space benefits neighborhoods comprised of mostly pavement and brick—the natural world can be both therapeutic and educational in and of itself.

Policy #4: School systems and religious organizations should be aggressively targeted as avenues by which the public may be educated first about the facts of our environmental situation (i.e. pathogens in the water supply, erosion as well as global warming and other world issues). To follow would be a more spiritual push to promote a genuinely respectful regard for the natural world for the energy flowing within it as well as for the direct affect it has on our lives.

As much as I see implementation of Leopold's Land Ethic into mainstream philosophy and religion as the only real way to ever stop man's degradation of the earth, I do not necessarily think that it is possible to convert the collective mindset of the public with as much rapidity as is needed to fix the problem. So, one must make a decision: Is putting efforts into convincing people of the need for environmental restoration via economic and health pressures worth skirting the more fundamental issues of over consumption and unwillingness to take on any responsibilities that might be of inconvenience? I believe that Leopold's ideas, as much as they may be correct, would be difficult for most Americans to swallow. Perhaps appealing to human selfishness would not only expedite environmental restoration, but also be the first push in opening the door to America's collective consciousness which must swing wide before Leopold may step

in. The following are policies that would aim to “fix the problem” of the Bronx River as much as is possible within the current mindset of the majority.

Policy #5: Allot increased federal, state and city funds to organizations like the Bronx River Working Group and to programs like that of the study being conducted by the USACE. Ultimately, restoration (especially in these early desperate stages) may only move forward if it is backed economically.

Policy #6: Stricter laws governing the dumping of hazardous waste into the river by industry as well as stricter enforcement of those laws.

Together, these two policies, if executed seriously, could make a world of difference to the reparation of Bronx River’s ecological status. Again, though, policies like these will only be implemented by politicians who believe in sometimes valuing The Land above economic gain and convenience—a situation that will only occur when a like-minded public vote such and individual into office.

5. Concluding Remarks

Enough history and charisma flows down the Bronx River to make it a perfect candidate for environmental restoration. Residents of Westchester, The Bronx, and even New York City in general could very easily get behind a movement to clean up the river as it physically touches a large area. Such a move would be necessary to make the kinds of reparations needed a reality. In theory, a massive clean up of the Bronx River would lead to the ecological restoration of the entire New York/New Jersey Harbor Estuary. The most difficult task, however, that environmentalists will face is penetrating the generally selfish/species specific mindset of the American public. That mindset allows ranchers to continue shooting predators from airplanes and factories to continue releasing

carbon dioxide into the air. A change in human philosophy is the only thing strong enough to fuel the monolithic task of repairing the damage humans have inflicted upon the earth.

Endnotes

Mason, C.F. Biology of Freshwater Pollution. Longman, New York: 1981.

Van DeVeer, Donald. People Penguins and Plastic Trees. 2nd Ed. Wadsworth, New York: 1995