

### 100-year Flooplain

#### Legend

- Project Boundary
- Bronx River
- 100 Yr. Floodline

**40% of the park landscape is within the 100-year floodplain. Built structures such as playgrounds and comfort stations are regularly inundated.**



Fort Knox West in flood, Spring 2007



Lower Shoelace Park during Spring 2007 flood

## Floodplain Resource Management

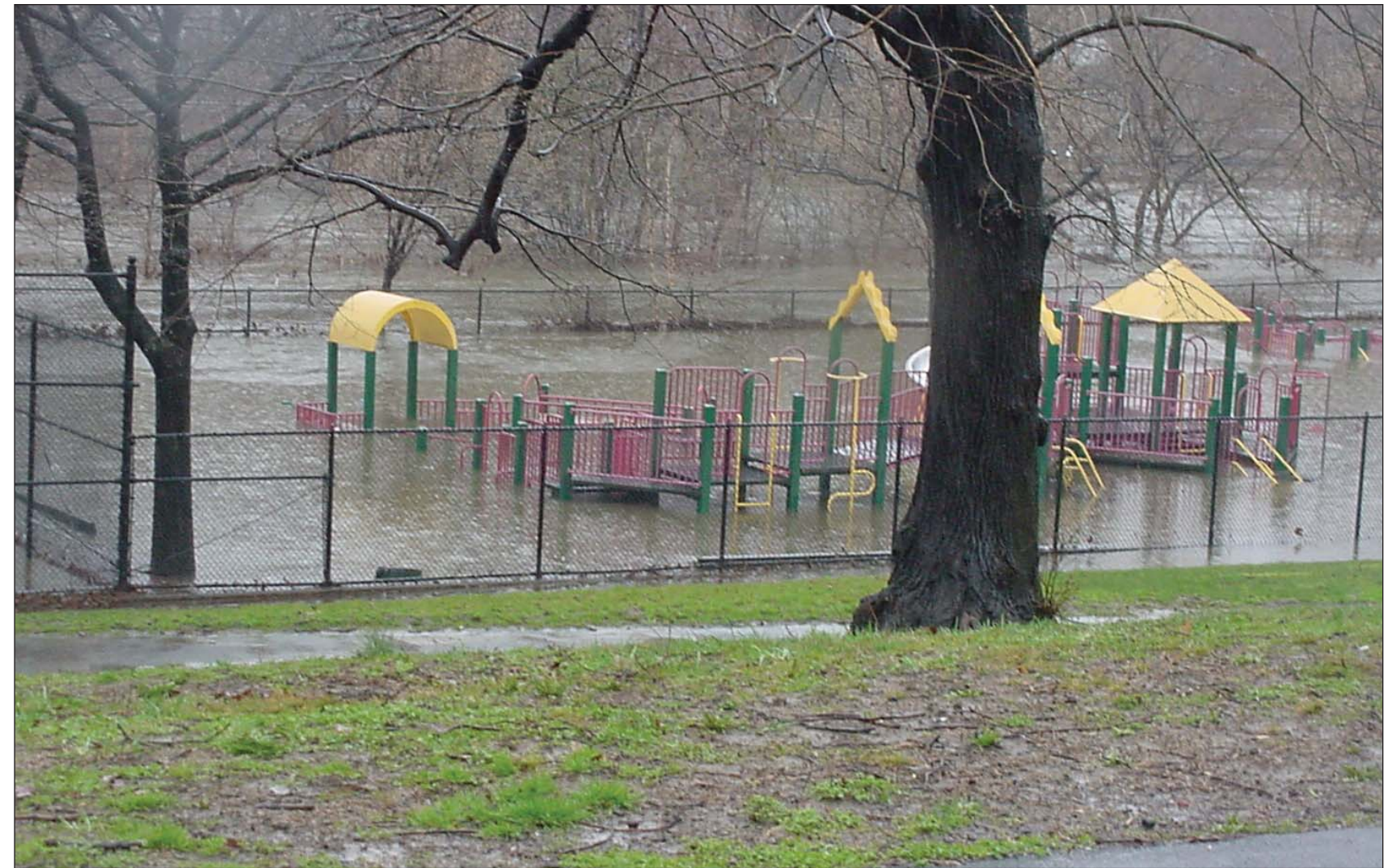
The widest, lowest floodplain along the Shoelace Park reach is limited to an area of the river at approximately 216th Street. Elsewhere, the channel valley and floodplain are narrow. Due to these narrow conditions, the flashy flow regime, and the rapid transition to upland, a majority of plants located within the 100-year floodplain are facultative upland species rather than wetland species. There are no officially mapped wetlands within the park.

Decades of watershed development and other anthropogenic disturbances have led to the proliferation of invasive plant species along the banks of the Bronx River, including Japanese knotweed (*Fallopia japonica*), Japanese hops (*Humulus japonicus*), Lesser celandine (*Ranunculus ficaria*), and Purple loosestrife (*Lythrum salicaria*). Japanese knotweed is the most prevalent invasive species found within the park. Spreading by rhizomes, this invasive herbaceous plant thrives in direct sunlight and has colonized much of the floodplain. These invasive species displace native riparian plant communities, thereby impacting riparian habitat through reduction in recruitment of native riparian species. Additionally, increases in invasive species result in changes in the organic material entering the channel and the delivery of large woody debris in the channel, both of which can change the habitat value and structural configuration of the channel bank over time.

A detailed and coordinated *Riparian Invasive Plant Management Plan*, currently being developed by New York City Department of Parks & Recreation Natural Resources Group (NYCDPR NRG), the Bronx River Alliance, with assistance by the New York Botanical Garden will allow more effective use of limited resources. This plan will build on the recommendations of the Shoelace Park Master Plan.

Vegetation restoration efforts to date have increased the native forested wetland species population, but constant pressure from invasive species continues to be a serious problem and threatens restoration projects along the river for the following reasons:

1. Ongoing stressors, such as hydrologic disturbance, erosion and sedimentation favor exotic invasive species
2. Organizations that manage the land along the river – NYCDPR NRG, the Bronx River Alliance, the New York Botanical Garden, and the Bronx Zoo Wildlife Conservation Society (WCS) – currently lack the resources to implement a sustained, intensive level of invasive plant removal along the entire riparian corridor
3. Invasive species seed source is virtually impossible to eliminate



Olinville Playground in Flood, Spring 2007



Woody vegetation growth rate analysis was conducted to determine the approximate size of species that are believed to be alive in the park today as represented in the last completed survey (NYCDPR, 1990)

### Canopy Vegetation

#### Legend

SPECIES	CALIPER (DIAMETER AT BREAST HEIGHT)				CALIPER (DIAMETER AT BREAST HEIGHT)		
	<6"	6" ≤ DBH < 18"	18" ≤ DBH		<6"	6" ≤ DBH < 18"	18" ≤ DBH
ASH				MAPLE			
BEECH				OAK			
BERRY				PINE			
DOGWOOD				SWEET GUM			
ELM				SYCAMORE			
FIR				WILLOW			
LOCUST				BASSWOOD			
LONDON PLANE				UNIDENTIFIED			

### Vegetation

There are currently two dominant landscape typologies within the park, each with their own visual qualities and maintenance regimes. The first landscape type is Pastoral, established during the creation of the historic Bronx River Parkway from 1907 to 1925. The pastoral landscape type became prevalent as parkways were built throughout America, and over time has become ingrained as a distinguished twentieth-century vernacular landscape. The line of majestic Oak trees along the historic parkway road-bed stands as a reminder of the parkway project and its distinctive historic landscape. Mature trees, many with calipers up to 48" diameter at breast height (dbh), are located in a less formal arrangement within generous lawn panels. Fewer large trees are found closer to the river's edge. This pastoral landscape typology dominates the park at higher elevations.

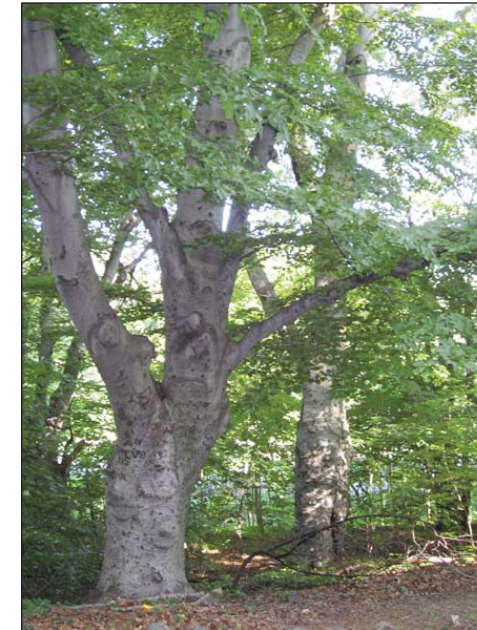
The second landscape typology is the Upland Forest. It is located within the riparian corridor and much of it is within the 100-year floodplain. Over the last decade, this zone has received a high level of management, primarily from the Bronx River Conservation Crew, through the planting of native species including both canopy trees and understory plantings. However, these same areas have been plagued by constant pressure from invasive plant species. Japanese knotweed (*Fallopia japonica*) and Japanese hops (*Humulus japonicus*) have colonized vast regions within this area. Other common invasive species, such as Garlic mustard (*Alliaria petiolata*) are present, though in lower quantities.



Row of historic Oaks in southern section of Shoelace Park



Pastoral lawn area



Stand of mature Beech trees near 233rd Street

Many trees planted during the original parkway development have matured and can still be seen in the park today. Species include Ash, Beech, Linden, Maple, Oak, Sycamore, and Willow. A historic parkway survey from 1934 shows the row of Oak trees lining the original parkway road were 4-6" caliper trees. A survey from 1995 shows these majestic markers had grown to 36-42" average caliper. Many of these same trees exist along the historic parkway alignment today, seventy-five years later.

## Additional Resources:

Bronx River Greenway Plan, Bronx River Alliance, [www.bronxriver.org/plans](http://www.bronxriver.org/plans)

Bronx River Design Guidelines are included in the Bronx River Greenway Plan and are available on the same webpage: [www.bronxriver.org/plans](http://www.bronxriver.org/plans)

Bronx River Ecological Restoration and Management Plan, Bronx River Alliance, [http://www.bronxriver.org/puma/images/usersubmitted/greenway\\_plan/](http://www.bronxriver.org/puma/images/usersubmitted/greenway_plan/)

Bronx River Greenway Signage Master Plan, available upon request - see contact information below

Urban Riparian Wetland Restoration Evaluation: A Case Study for the Bronx River, Natural Resources Group, City of New York, Department of Parks & Recreation

Native Species Planting Guide for New York City and Vicinity, Natural Resources Group, City of New York, Department of Parks & Recreation

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For more information, please contact the Bronx River Alliance at 718.430.4665 or via email: [bronxriver.info@parks.nyc.gov](mailto:bronxriver.info@parks.nyc.gov)

For more about the Bronx River Alliance, see [www.bronxriver.org](http://www.bronxriver.org)