



Natural Resources Group Forest Restoration Team Fall 2002 Summary

This fall was a productive season for the Natural Resources Group (NRG) Forest Restoration Team. For the season, the team consisted of 11 full time foresters, and 2 apprentices. Assistance was provided by other NRG staff, and 8 volunteer and school groups. Plantings took place in 6 parks in Queens, Manhattan, and the Bronx. The following is a summary of the work completed in the Fall of 2002.

- Planted 9,886 2-3' containerized trees and shrubs
- Planted 215 B&B trees
- Planted 23,274 herbaceous plants
- Hosted 12 volunteer events with 8 different volunteer and school groups
- Installed 400 linear feet of streambank bioengineering
- Planted 112.5 pounds of native groundcover seed

Natural Resources Group Forest Restoration Team Planting Report Fall 2002

I. Tree Plantings

During the Fall 2002 planting season, the Natural Resources Group (NRG) Forest Restoration Team planted a total of **10,101** trees and shrubs, comprised of 9,886 containerized trees and shrubs, and 215 balled and burlaped trees. These plantings, containing 44 species, took place throughout 6 different parks in 3 boroughs. The majority were 2-3 foot containerized plants.

A. Containerized Plantings by Park

Alley Pond Park – Queens	3,107	containerized trees and shrubs
Inwood Hill Park – Manhattan	2,171	containerized trees and shrubs
Seton Falls Park – Bronx	1,815	containerized trees and shrubs
Bronx River – Bronx	1,467	containerized trees and shrubs
West Farms – Bronx	866	containerized trees and shrubs
Riverdale Park – Bronx	460	containerized trees and shrubs

TOTAL **9,886 Trees and Shrubs**

B. Containerized Plantings by Species

1217	Northern red oak (<i>Quercus rubra</i>)
1108	Arrowwood viburnum (<i>Viburnum dentatum</i>)
634	Tulip poplar (<i>Liriodendron tulipifera</i>)
573	Silky dogwood (<i>Cornus amomum</i>)
539	Chestnut oak (<i>Quercus prinus</i>)
476	Red maple (<i>Acer rubrum</i>)
378	Pussywillow (<i>Salix discolor</i>)
373	Spicebush (<i>Lindera benzoin</i>)
325	Pin oak (<i>Quercus palustris</i>)

312	Black oak (<i>Quercus velutina</i>)
307	Black birch (<i>Betula lenta</i>)
296	Chokeberry (<i>Aronia arbutifolia</i>)
273	Green ash (<i>Fraxinus pensylvanica</i>)
265	Flowering dogwood (<i>Cornus florida</i>)
232	Sweetgum (<i>Liquidamber styraciflua</i>)
228	Sandbar willow (<i>Salix exigua</i>)
225	Elderberry (<i>Sambucus canadensis</i>)
191	Hackberry (<i>Celtis occidentalis</i>)
161	Bitternut hickory (<i>Carya cordiformis</i>)
158	Eastern hornbeam (<i>Carpinus caroliniana</i>)
153	Sugar maple (<i>Acer saccharum</i>)
149	Speckled alder (<i>Alnus rugosa</i>)
143	White oak (<i>Quercus alba</i>)
139	American sycamore (<i>Platanus occidentalis</i>)
103	Grey-twig dogwood (<i>Cornus racemosa</i>)
101	Hophornbeam (<i>Ostrya virginiana</i>)
100	American strawberrybush (<i>Euonymus americanus</i>)
98	Winterberry (<i>Ilex verticillata</i>)
90	Serviceberry (<i>Amelanchier canadensis</i>)
78	Silver maple (<i>Acer saccharinum</i>)
58	Persimmon (<i>Diospyros virginiana</i>)
53	Black chokeberry (<i>Aronia melanocarpa</i>)
50	River birch (<i>Betula nigra</i>)
50	Black willow (<i>Salix nigra</i>)
45	Sweet pepperbush (<i>Clethra alnifolia</i>)
40	Red-osier dogwood (<i>Cornus sericea</i>)
39	Gray birch (<i>Betula populifolia</i>)
38	Black walnut (<i>Juglans nigra</i>)
35	White ash (<i>Fraxinus americana</i>)
35	Eastern red cedar (<i>Juniperus virginiana</i>)
15	Cottonwood (<i>Populus deltoides</i>)
3	Eastern redbud (<i>Cersis canadensis</i>)

TOTAL

9,886 Containerized Trees and Shrubs

C. Balled and Burlaped Plantings by Park

Inwood Hill Park – Manhattan	110 trees
Bronx River – Bronx	54 trees
Alley Pond Park – Queens	51 trees
TOTAL	215 Trees

D. Balled and Burlaped Plantings by Species

100	Tulip poplar (<i>Liriodendron tulipifera</i>)
66	Green ash (<i>Fraxinus pensylvanica</i>)
37	Yoshino cherry (<i>Prunus X yedoensis</i>)
10	American sycamore (<i>Platanus occidentalis</i>)
2	American linden (<i>Tilia americana</i>)
TOTAL	215 Trees

II. Groundcover Plantings

During the Fall 2002 planting season, NRG Forest Restoration staff planted a total of 23,724 herbaceous groundcover plants, representing 45 species. Groundcover root systems reduce sedimentation and non-point source pollution by stabilizing steep, eroded slopes and streambanks. Cribbing and jute or coir mats temporarily stabilize the slope and groundcover vegetation is planted through the mat. The mats and cribbing eventually biodegrade as the root systems become established. The majority of these plants were 2 ½ “ by 2 ½ “ plugs, however, 2,750 1-quart size plants are included in the total.

A. Groundcover Planting Totals by Park

Seton Falls Park – Bronx	10,558 plants
Alley Pond Park - Queens	3,990 plants
Inwood Hill Park – Manhattan	3,665 plants
Riverdale Park – Bronx	2,994 plants
West Farms – Bronx	1,738 plants
Bronx River – Bronx	829 plants
TOTAL	23,724 Groundcover Plants

B. Groundcover Planting Totals by Species

1,905	Heart leaf aster (<i>Aster cordifolia</i>)
1,635	White snakeroot (<i>Eupatorium rugosum</i>)
1,503	White wood aster (<i>Aster divaricatus</i>)
1,243	Lizard’s tail (<i>Saururus cernuus</i>)
1,122	Fringed sedge (<i>Carex crinita</i>)
1,094	Virginia creeper (<i>Parthenocissus quinquefolia</i>)
1,072	Soft rush (<i>Juncus effusus</i>)
1,028	Pennsylvania sedge (<i>Carex pennsylvanica</i>)
869	Flattened sedge (<i>Danthonia compressa</i>)
850	Shallow sedge (<i>Carex lurida</i>)
812	Blue stemmed goldenrod (<i>Solidago caesia</i>)
730	Lesser burreed (<i>Sparganium americanum</i>)
724	Woolgrass (<i>Scirpus cyperinus</i>)
680	Pickeralweed (<i>Pontideria cordata</i>)
650	Fox sedge (<i>Carex vulpinoidea</i>)
592	Soft stemmed bulrush (<i>Scirpus validus</i>)
553	Avens (<i>Geum spp.</i>)
553	Path rush (<i>Juncus tenuis</i>)
532	Blueflag iris (<i>Iris versicolor</i>)
500	New England aster (<i>Aster novae-angliae</i>)

496	Woodland sunflower (<i>Helianthus divaricatus</i>)
489	Cardinal flower (<i>Lobelia cardinalis</i>)
450	Black bulrush (<i>Scirpus atrovirens</i>)
362	Common three-square bulrush (<i>Scirpus pungens</i>)
344	Wild columbine (<i>Aquilegia canadensis</i>)
326	Virginia wild rye (<i>Elymus virginicus</i>)
300	Wild geranium (<i>Geranium maculatum</i>)
250	Turtlehead (<i>Chelone glabra</i>)
200	Deertongue grass (<i>Panicum clandestinum</i>)
200	Rue anemone (<i>Anemone canadensis</i>)
196	Appalachian sedge (<i>Carex appalachica</i>)
172	Tussock sedge (<i>Carex stricta</i>)
150	Narrow-leaved cattail (<i>Typha angustifolia</i>)
146	Mountain mint (<i>Pycnanthemum virginianum</i>)
130	Northern arrowhead (<i>Sagittaria latifolia</i>)
124	Olney's three-square bulrush (<i>Scirpus americanus</i>)
100	Taper-tip rush (<i>Juncus acuminatus</i>)
100	Salt marsh bulrush (<i>Scirpus robustis</i>)
100	Long-bracted tussock sedge (<i>Carex aquatilis</i>)
96	Royal fern (<i>Osmunda regalis</i>)
95	Spiderwort (<i>Tradescantia virginiana</i>)
90	Hay-scented fern (<i>Dennstaedtia punctilobula</i>)
72	Canada rush (<i>Juncus canadensis</i>)
59	Foamflower (<i>Tiarella cordifolia</i>)
30	Spotted Joe-pye weed (<i>Eupatorium maculatum</i>)

TOTAL **23,724 Groundcover Plants**

III. Bioengineering

During the Fall 2002 planting season, 200 linear feet of streambank stabilization were completed. This work involves regrading portions of eroding streambanks and slopes, stabilizing them with biodegradable coconut fiber logs, wooden logs, and rock, covering surfaces prone to erosion with various geotextile mats and blankets, and planting large amounts of woody and herbaceous plant material. While the fabric and fiber products provide the immediate erosion control, it is the roots of the plant material which will provide the long term stabilization of the eroded site. The majority of this work occurred along the Bronx River, while some occurred in Inwood Hill.

A. Coir Logs

Coir logs are one of the main structural elements of bioengineering projects, made by rolling coir fiber into a long tube. The products used this year were typically 10' long by 6" wide, and were secured with wooden stakes. **300** linear feet of coir log were installed this fall, mainly in Inwood Hill Park. These coir logs were prevegetated at our nursery with 450 Virginia creeper (*Parthenocissus quinquefolia*) plants, and grown on for several months prior to installation.

B. Coir Blanket

Coir blanket is a woven mesh, similar to jute mat, made of coconut fiber, which is used to cover eroded slopes. In addition to reducing erosion, the texture of the mat actually traps sediment on slopes and streambanks. **2,400** square feet of coir blanket were installed this fall, all along the Bronx River.

C. Coir Mattress

Coir mattresses are 7 ½' by 3' mats of coir fiber into which herbaceous plants are inserted and grown on for a few months. The resulting vegetated sod is then moved to a streambank site and staked down, where it will root into the soil. **1,350** square feet of coir mattress were installed along the Bronx River at the West Farms site. These mattresses contained over 6,000 woody and herbaceous plants.

D. Log Crib Wall

A log crib wall is an interlocking log structure used to stabilize steep banks on rivers and on slopes. These structures are commonly backfilled with live plant material, soil, and rock. The log crib wall installed by hand on the Bronx River contains over **1,200** linear feet of wooden log, 80 tons of rock, 20 cubic yards of soil, and 600 containerized shrubs. This was the Team's most labor-intensive project of the season.