GREENWAYS

THE LINK BETWEEN ALL SPECIES; ANIMAL, PLANT, & MAN

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Environmental awareness has come to the forefront of political and social concerns. As we approach the twenty-first century we are witnessing an explosion of increased consciousness of our environment, specifically as it relates to urban sprawl and its effects on the natural environment. Population growth, housing developments, urbanization, and highway systems all play a major role in the degradation of natural habitats. Concrete is replacing what were once areas of natural habitat and breaking the flow of the natural system. Development causes separation of the whole system, in which species, under normal conditions, rely heavily on the interconnectiveness of the entire system. Although the cohesive interaction of urban areas and natural ecosystems may seem farfetched, there are many successful examples of this interrelationship between nature and man. Greenways link reserves through corridors of natural communities much like a highway connects cities. Greenways are an effective means of reconnecting subsystems resulting from urban sprawl back to the original ecosystem.

Nature has always been the principal force in the shaping of the landscape for millions of years. Although man has been on the earth for only a minute fraction of that time, he has caused the unnatural change of the landscape to occur rapidly resulting in the extinction of many plant and animal species as they do not have enough time to adjust to the changes brought on by humans. Today, ecologists and conservationists have come together with local planners, architects, developers, engineers, and a diverse array of public agencies to develop a solution to urban sprawl's disastrous effects on natural habitats.

Greenways provide a gateway to reconnect small patches of natural habitats, which allows the natural flow of nature disrupted by urban sprawl. They allow a positive interaction between plants, animals, and humans, while serving as excellent educational avenues to arouse modern man's interest in nature. Greenways may include recreational activities such as roller blading, biking, canoeing, fishing, hiking, and horseback riding, which bring an additional benefit to humans, allowing for more exercise, increased good health and psychological stability. They may also serve as transportation routes for humans and animals alike, reducing the impacts that may disturb natural habitats within its ecosystem.

A good habitat is essential to prevent the loss of plant and animal species. It contains several variations in types, heights, and ages of trees, shrubs, and herbs. Vegetation provides berries and leaves (part of many animal diets) as well as places to hide. It is necessary for these areas to overlap between one type of environment to another. Distinct areas with unique ecological characteristics such as sun, shade, open vegetation, or thick vegetation give animals a chance to choose where they want to eat and sleep or hide.

In the United States, eighty percent of the population lives in urban and suburban areas. As the population continues to grow and sprawl into the surrounding environment, the neighborhood of trees and forests is lost. This loss is more than sentimental; it carries an economic price tag. Greenway systems allow economies to thrive on their natural resources for financial gains without degrading them.

Greenways are not a new concept. All over Europe there are trails for hiking, skiing, and cycling that link small hotels, pensions, and other accommodations suitable for spending the night. Trails run throughout the countryside

allowing guests and visitors to pass castles and chateaus, museums and other natural and cultural points of interest. In the Czech Republic, attempts to revive the Greenways idea began not long after the Velvet Revolution. The initiative and work of the civic association Greenways/Zelene stezky led in 1995 to the establishment of a hiking trail from Prague to Vienna and two years later also to the

opening of a marked cycling trail connecting the two European capitals. A number of towns, villages, business people, and especially citizens gave their support to the Greenways idea.

All over the world, greenways are becoming an integral part of urban planning as

it relates to land and water management. International efforts such as the Global Releaf Project, which provides funding for tree planting projects in urban areas, is one example of an global effort to encourage the use of greenways to improve natural habitats

(Appendix A). Nadace Partnerstvi, also called the Czech Environmental Partnership, is a member of the Environmental Partnership for Central Europe. The Environmental Partnership is made up of four indigenous foundations located in the Czech Republic, Slovakia, Poland and Hungary that are focused in stimulating citizen participation around the badly damaged environment in the region.

Greenways-Zelene stezky, also part of the Environmental Partnership for Central Europe, a greenway project that promotes cultural preservation and environmental conservation by fostering environmentally friendly tourism along "green" corridors,

including the Prague-Vienna Greenway, a network of 100-year-old hiking trails between Prague and Vienna. Travelers can walk or bike between historic towns and villages, visit castles, medieval churches, monasteries, and Jewish sites while touring Europe.

The United Nations Environmental Programmes (UNEP) together with the United Nations has developed several programs that encourage countries to create greenways throughout the world. In cooperation with developed countries under developed countries are creating more greenway systems to prevent the degradation of the earth. UNEP has also assisted in contributing to the development of award-winning programs such as the Spanish Greenways Programme in Spain. The aim of the Greenways

Programme is to reuse disused former railway lines as non-motorized routes for cyclists, walkers, persons with reduced mobility, skaters, etc. [1]

Greenways are defined by the Florida statutes as "a linear open space established along a natural corridor, such as a riverfront, stream valley, or ridgeline, or over land along a railroad right-of-way converted to recreational use, a canal, a scenic road, or other route; any natural or landscaped course for pedestrian or bicycle passage; an open space connector linking parks, nature reserves, cultural features, or historic sites with each other and populated areas; or a local strip or linear park designated as a parkway or greenbelt."[2]

The alteration of the Florida landscape is a result of the continuous contraction and expansion of continental glaciers. At least four times in the last 125 million years, Florida has been completely emerged under the sea and raised above the waters causing the land to develop into a wet prairie habitat for several species of wildlife. During the past century much of Florida's natural landscape was transformed by agriculture, rapid development, and super-sized engineering projects. Much of Florida has become involved in ecological restoration projects and the implementation of long-term management plans.

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[1] http://www.bestpractices.org/cgi-bin/bp98.cgi?cmd=detail&id=10291

[2]Florida Department of Environmental Protection and Florida Greenways Coordinating Council. *Connecting Florida's Communities with Greenways and Trails, A Summary of the Five Year Implementation Plan for The Florida Greenways and Trails System*. Office of Greenways and Trails. Tallahassee, FL. Feb 1999.

The Florida Greenways and Trails System has been in existence since 1979 and provides recreational trails systems for people to access and enjoy outdoor recreation and provides wildlife management and water management areas that protect the Florida's natural ecosystem. The project began by the 1000 Friends of Florida and the Conservation Fund in 1991. In 1993 the Florida Greenway Commission was created. Recommendations were made for the creation of a statewide freeways system that would link natural areas and open spaces. The purpose of the system was to conserve native landscapes and ecosystems while offering recreational opportunities.

An excellent example of a greenway system in South Florida is the Abacoa Greenway built within the Abacoa Community in Jupiter, the northern limit of the tropics. "Abacoa

was built as a sustainable, mixed-use community that combines living, learning, and recreating space for people with habitat for wildlife." The community is built on land that is home to 360 endangered gopher tortoises. Because plant species such as slash pine and saw palmetto are among their favorite habitat, the preserve upland areas are managed carefully. Set in the heart of the community, the greenway encompasses approximately 260 acres, serving the greenway's primary focus of providing upland habitat for the tortoise, as well as providing a storm water management system for the community as a whole.

The Abacoa Partnership For Community (APC) has developed the "Talk About Community Speaker Series" where residents are invited to hear from expert in fields related to community development in an interactive manner.

> APC brings the lessons of community building at Abacoa to those in our state and nation who are seeking to improve their neighborhoods and are committed to the common good.[3] The best way to preserve your natural environment is by creating -- in the community -- an understanding of the role that nature plays in the growth of South Florida. Courses will focus on:
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> - Greenways education
> - Species tracking
> - Water quality and conservation
> - Interface between humans and nature
> - Research programs
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> Students work together to understand the importance of greenways and the plants and animals that inhabit the area.

The greenways in Abacoa are open to residents and visitors at anytime, as the community is non-gated. Brochures are available for those who wish to educate themselves on the community's efforts. Catch and release fishing is permitted. Wetlands and pine flatwoods are among the several types of habitat that are connected by the greenways. Patrons are instructed not to disturb or collect plants, flowers, or any other natural objects found along the greenways and not to feed, touch, or disturb any animals.

Greenways are an effective means of reconnecting subsystems resulting from urban sprawl back to the original ecosystem. They allow plants and animals that may

[3] http://www.abacoapartnership.org/introduce.html

otherwise not continue to survive urban sprawl the opportunity to intermingle between habitats, creating a more natural setting. The bonus is that they allow people to interact with nature in a much more undisturbed manner, thus allowing us to become educated and ever more appreciative of the land we constantly modify for our benefit. What a great reward for man and what a well deserved chance for all of the world's plant and animal species.

APPENDIX
A

Global ReLeaf Projects
Urban Projects

https://www.amfor.org/newforms/treesself.php3

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AMERICAN FORESTS provides small cost-share grants through its Global ReLeaf Fund program to leverage community resources for tree-planting projects in urban areas. These projects include streamside forest buffers, street trees, and open space plantings.

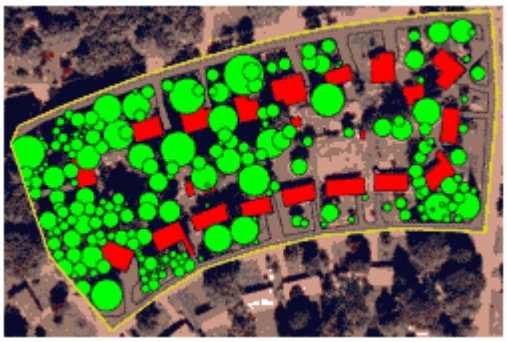
Projects
Arkansas
Hot Springs National Park, Grand Ave Revitalization Project
Arizona
Camelback Mountain & Echo Canyon Park Projects
Cochise Global ReLeaf, Collective Tree Program
Trees for Tucson, Sugar Hill Neighborhood Street Tree Planting
West Yavapai Global ReLeaf, Four Points Demo Project
California
California Oak Foundation, "The Oaks Return to Oakland" Project
City of Santa Clarita, Canyon View Oak Tree Project
Hoopa Tribe School Forest
San Francisco, South of Market Area Project
Sonoma County ReLeaf, "A Shade Better" Program
Trees for Public Places, Neighborhood Replanting Program
Colorado
Colorado ReLeaf, Living Snow Fence Project
Douglas County Arbor Day Program
Martinez Park Tree Planting Project
Town of Parker Arbor Day Project
Connecticut
Beltown Manor for Seniors, New Neighborhoods Tree Project
Noah Webster School, Hartford School Trees Program
"Trees for Hightop Neighborhood!"
Whitneyville Neighborhood, Tree Replacement Program

Georgia
Kirkwood Neighborhood, Street Tree Planting Project
Hawaii
Kaua'i, Waimea Canyon Reforestation Project
Illinois
Famous & Historic Trees "Living Classrooms"
Kennedy Expressway Tree Planting Project
Indiana
Gateway to Fort Wayne-Baer Field Airport
Kentucky
Bicentennial Trees for Life Project
Target Green, Project 1
Target Green, Project 2
Louisiana
"The Giving Tree" on Stuart Ave
Lee High School, Campus Reforestation Project
Terrace Avenue Street Tree Project
Massachusetts
Newtonville Square Beautification Program, Adopt-A-Tree Project
Maryland
Anacostia Watershed, NE\NW Branch Floodplain Planting
Baltimore County, Chesterwood Park Project
Broadneck High School Campus Restoration Project
Chestertown Middle School Forestry Project
City of Mt. Rainier, Northwest Branch Project
Dulaney Branch Riparian Restoration Project
General Stricker Middle School Campus Reforestation Project
Greenbury Point Riparian Restoration Project
Joppa View Elementary School Campus Reforestation Project
Sparrows Point High School Campus Restoration Project
Town of Westernport, Georges Creek
Maine
Wellington Elementary School Arboretum
Michigan
City of Pontiac, Indian Hills Planting Project
"Ideas To Grow On" Project
Neighborhood Tree Planting Program
Sapling Distribution Project
Minnesota
City of Brooklyn Center Residential Reforestation Project
Maple Grove Park's Gravel Mining Reclamation Project
St. Paul Central High School, Central ReLeaf Project
Mississippi
City of Winona, Summit Street Planting Project
ReLeaf Greenville, Main Street Planting Project
Nebraska
Parks of Pride Arboretum
New Mexico
Indian Pueblo Culture Center, Pueblo Tree Trail
Tree New Mexico, Tree Planting Program
New York

7th Ave. Windsor Place, Minority Youth Tree Planting Project
Citizen Pruner and Maintenance Program
Congregational Church of North New York, Community Garden Project
Gloverville ReLeaf, Bleecker Square Green Oasis
Nuestros Nino Lots-for-Tots
Playground Project #2, Lots-for-Tots Program
Village of Malverne Street Tree Project
North Carolina
City of Mt. Airy, South Street & Riverside City Park Planting Projects
Knox Middle School Campus Arboretum
Main Street Gateway Planting Project
Trail of Trees, Run Florida, Colorado and New York Project
Ohio
City of Cleveland, Experimental Trees Project
Oregon
Grants Pass Towne Center, Downtown Tree Planting Project
Friends of Tree's Neighborhood Tree Planting Program
Toledo Middle School Campus Reforestation Program
Union County Fairgrounds Planting Project
Pennsylvania
Blair County Trout Unlimited
Capital Area Greenbelt Assoc
Cedar Crest FFA
Environmental Advisory Committee
Green Valley Assoc. of SE PA
Lackawanna River, Balakeley Park Tree Planting Project
Moosic Little League
Pennypack Ecological Restoration Trust
Squirrel Hill Park, Demo Vacant Lot Project
Wrighstown Environmental Advisory Council
South Carolina
John's Island Parkway Tree Planting Project
Savannah Highway Tree Planting Project
South Dakota
Eureka Park Project
Tennessee
Chattanooga Gateway Project 222
ReLeaf Morristown Project
Texas
JFK Blvd. Tree Planting Project
Trees for Houston Challenge
Utah
Leaf it to Us, Project 1
Leaf it to Us, Project 2
Virginia
City of Harrisonburg, Loundentown Memorial Drive Project
Fairfax ReLeaf, ReLeaf Greenspace Project
Town of Blacksburg, South Entrance Project
Virgin Islands
Virgin Islands ReLeaf, Neighborhood Replanting Program
Washington

City of Bellevue Tree Planting Program
LaVenture Middle School Campus Project
Miller Park Neighborhood Tree Project
Mountain to Sound Greenway, I-90 Project
Re-Tree Ballard Project
Sammamish ReLeaf, Part 1
Sammamish ReLeaf, Part 2
Seattle Center, Eddie Bauer's 100th Birthday
Tacoma Neighborhood Tree Planting Program
YMCA Earth Service Corps, Energy Conservation Project
Washington D.C.
Kenilworth Park, Project 1
Kenilworth Park, Project 2
Latin American Youth Training Program
Wisconsin
Burlington Market St. Tree Planting Project
City of Kenosha Neighborhood Greenspace Program
City of Kenosha, Lincoln Park Neighborhood Project
City of Menomonie, Lakeside Park Project
Greenfield's Konkel Park Project
River Falls Main Street 2000, Arbor Day Project
Walworth County Roadside Tree Project
International Projects
Sarajevo Schoolyard Memorial, **Bosnia**
City of Sofia, City Park Urban Greening, **Bulgaria**
Alberta, City of Calgary, Bow Bottom Trail Buffer, **Canada**
British Columbia, City of Pitt Meadows, Harris Road Beautification Project, **Canada**
City of Santiago, Tree Planting in the Conchali Neighborhood, **Chile**
Cities of Minneapolis & Kuopio, Sister City Park Project, **Finland**
City of Erftkreis Reforestation Project, **Germany**
Cities of Leipzig & Houston, Sister City School Plantings, **Germany**
City of Swinoujscie, Urban Community Garden, **Poland**
City of Busteni Community Forest, **Romania**
Greening Urban Townships, **South Africa**
Township of Orange Farm Reforestation, **South Africa**
Dudley County, Mons Hill, National Urban Forestry Unit, **United Kingdom**
Sardwell County, Forge Mill Farm, National Urban Forestry Unit, **United Kingdom**
Walsall County, Bently Lake, National Urban Forestry Unit, **United Kingdom**
Wolverhampton County, Northnycote Farm, National Urban Forestry Unit, **United Kingdom**

APPENDIX
B



Sample Site Analysis: Forest Park, GA - October, 2000 using CityGreen Software

Site Statistics
Total Area: 6.46 ac
Number of Homes: 17
Canopy Area: 2.25 ac (35%)
Grass Area: 2.63 ac (41%)
Imperv Area: 0.94 ac (15%)
Building Area: 0.75 ac (12%)
Water Area: ~ ac (0%)
Hydrologic Soil: C
Percent Slope: 2.0
Rainfall Type: II
Precipitation: 3.75 in
Runoff Volume: 2.07 in
Time of Concentration 0.2hrs
Peak Flow: 15.4cfs

Pollution Removal Benefits
Ozone: $277.92 (90.6lbs)
SO2: $10.98 (14.6lbs)
NO2: $92.18 (30.0lbs)
PM10: $148.61 (72.5lbs)
CO: $2.70 (6.2lbs)

Energy Benefits
Total Savings: $863.32
Savings per Home: $50.78
Total KWH Savings: 11510.9
KWH Savings per Home: 677.1
Carbon Generated Avoided: 429079.39 lbs.
Carbon Generated Avoided per Home: 25240.0 lbs.

Change in Peak Flow**: 11230 cubic feet

Tree Statistics
Tree Count: 228
Dominant Health Class: 4.3
Avg dbh: 13.2 in
Dominant dbh Class: 1.8
Dominant Ht Class: 2.6
Ownership (v|b|unk): 100%|0%|0%
Dominant Species: DGW (18%)
Number of Species: 33

Carbon Benefits
Carbon Storage: 99.50 tons
Carbon Sequestration: 0.17 tons/yr

Stormwater Benefits *
Runoff Reduction: 19.78%
Peak Flow Reduction: 27.9%
Time of Concetration Increase: 22.0%
Storage Volume Required to Mitigate

* Stormwater benfits are based on existing trees compared with a 0% tree canopy condition.
** Retention basin volume required if existing trees were removed