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Mianus River Basin: The Mianus Watershed Bioregional Planning Project [Roots]

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ROOTS...

The Mianus Watershed Bioregional Planning Project

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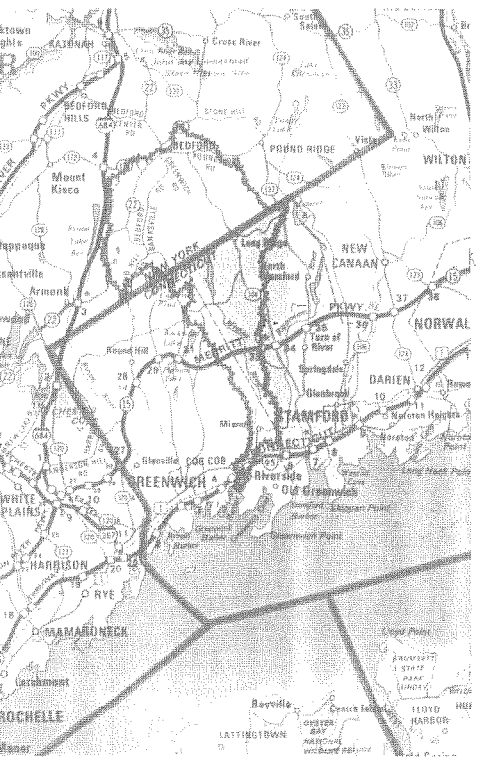


The Mianus River watershed crosses the boundaries of dozens of jurisdictions, including towns, counties and states.

Project Credits:

Louis McCagg (president, Westchester Land Trust); Alice Bamberger (project manager); Bice C. Wilson (project conceptualization, urban planning, GIS management, exhibit design), Anders Crofoot, David Crofoot, Bill Kellner (GIS team).

Have you ever crossed a border? Did the land change?

A living place underlies the jumble of jurisdictions we use to define our locales. That living place is called a bioregion, a region defined by the boundaries of its natural living systems. The project described here explores the impact of a bioregional frame of reference on the process of designing the future of our region.

Before we can successfully envision a sustainable future, we must confront longstanding shortcomings in our planning resources and processes. Most planning occurs within an abstract, political frame of reference and considers only a fragment of the information about the bioregion. The major environmental threat to the region is not big polluters, it's non point-source pollution, what could be called "life style pollution," the result of myriad individual daily decisions about the use and disposal of chemicals and about land use and management. We lack the resources and commitment to understand the cumulative impact of these decisions.

The goal of the Westchester Land Trust is to create tools and ongoing public processes to address these problems. Our group has brought together in a coalition the myriad agencies and citizens' groups responsible for the stewardship of the relatively pristine Mianus River watershed in the Long Island Sound estuary system. The Trust has begun a process that will change the context within which urban design issues are addressed and help change the way people experience their connection to the places they inhabit.

The first phase of our effort included public education, scientific testing (to establish a baseline against which to measure cumulative changes) and creating a planning and design database (using geographical information technology). The Trust is following up that study with ongoing water testing, education and political organizing efforts.

Think globally. Act locally? How do you define your neighborhood?

We often define our communities on the basis of human boundaries, such as national borders, property lines, school districts, town boundaries, area codes, zip codes, government agency service districts and zoning districts. These confusing jurisdictions and service zones are often invisible, overlapping yet seldom connected, and are often not even based on geography. We have devised this complex web of abstract, gerrymandered jurisdictions to separate ourselves from the earth.

It has become clear that our culture lacks a point of view, or frame of reference, that could lead people to consider themselves as part of the living system they inhabit. Our paradigm for

(Left) Testing water quality in the Mianus River.

(Below) Sources of household water. Wells predominate in the north; municipal water systems near the Long Island Sound.

Illustrations courtesy Bice C. Wilson, Westchester Land Trust.

relating to the land and the cultural institutions we have created to implement that paradigm are not leading us to live lightly on the land. We need to find a biologically- and geographically-based way to divide the landscape into manageable regions.

The landscape of each town is composed of watersheds, groves of trees, wildlife habitat and other biological systems. These tangible, visceral realities we can relate to, manage and sustain.

What place do you live in? Where are you from? When will you be from where you live?

Underlying your neighborhood is a living ecosystem known as a bioregion. Bioregions are defined by landform, drainage systems, distinct communities of plants and animals, and a degree of biological self sustainability. Bioregions tend to have soft, permeable edges and clear centers (often a river or other body of water).

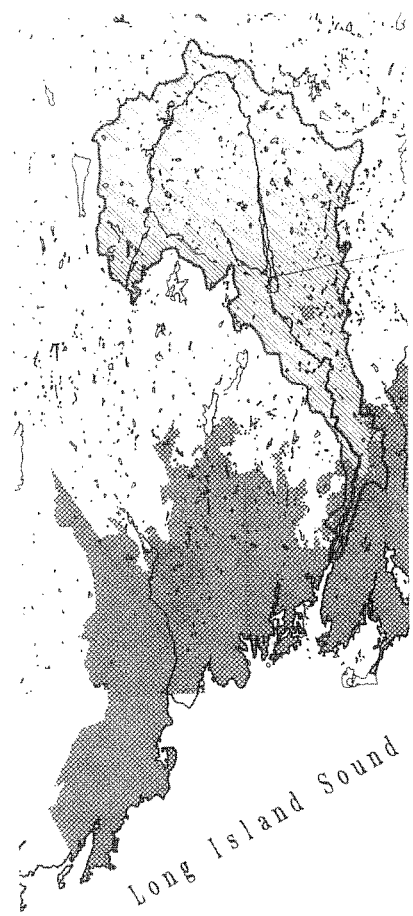
The New York metropolitan region is part of what might be called the Meeting-of-Waters Bioregion. It is defined by the confluence of the watersheds of the Hudson River, Long Island Sound and Newark Basin with the Atlantic Ocean. The Mianus River Watershed is part of the Long Island Sound subregion. One striking aspect of these nested regions is their interdependence: anything that affects the balance of the Mianus Watershed affects Long Island Sound, the Meeting-of-Waters Bioregion and the Atlantic Ocean. Whereas our manmade locales often serve to isolate us, our bioregions define our interdependence.

What drainage basin is your watershed part of? What stream or river runs near your house?

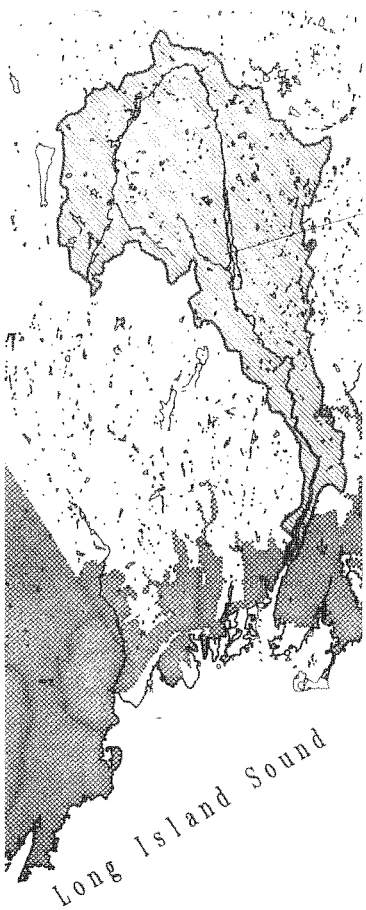
Many people have come to see watersheds as the basic building blocks of a bioregional point of view. Watersheds are defined by landforms. Their edges are the ridges and hilltops that direct water into a stream or river. The vitality of their living systems and the purity of the water that they contribute to the ocean is the result of all the day-to-day decisions of their inhabitants: Do I pour this paint thinner down the drain? Do I use toxic chemical fertilizer in my garden? Is there a place in my yard in which song birds nest?

What watershed is your neighborhood a part of?

The Mianus River Watershed is one of the nested subregions of the Long Island Sound watershed. The watershed is relatively undeveloped, and has a large wildlife population. It is under considerable development pressure. Its population has grown substantially over the past decade. The health of its ecosystem is threatened.



Fishing on the Mianus River. There are plans to build a fish ladder to help salmon re-establish a habitat in the river.



Wastewater treatment strategies. Septic systems dominate upriver; municipal wastewater treatment systems near the Long Island Sound.

There are few large parcels containing whole, coherent biological systems under one ownership left. Each subdrainage area, each hemlock grove (at the heart of the watershed is one of the last stands of primeval hemlock forest habitat in the Meeting-of-Waters Bioregion) is composed of myriad backyards. We must devise strategies to help small landowners consider themselves as the joint stewards of these ecological niches if we hope to maintain the integrity of these living systems.

The watershed contains all or parts of two states, five towns, two counties, two federal Environmental Protection Agency districts, four school districts and dozens of clubs, parishes, neighborhoods and interest groups. Each has its own vision for its fragment of the watershed. At present, the stewardship of the watershed is delegated by its residents to various public agencies and citizens' groups. Each has its own database, documenting that piece of the spectrum of the reality of the place that falls within its mandate. These databases are executed in different media, at different scales, with different criteria and information from different periods.

The Trust has barely begun the process of assembling all the information needed to understand the workings of this watershed into a unified, computer-based mapping system. When completed, it will be possible to see the assembled puzzle pieces through the frame of reference of the watershed, in the context of the bioregion. This will be the beginning of a resource that can allow us to design and plan in harmony with the patterns of life that tie all these jurisdictions together.

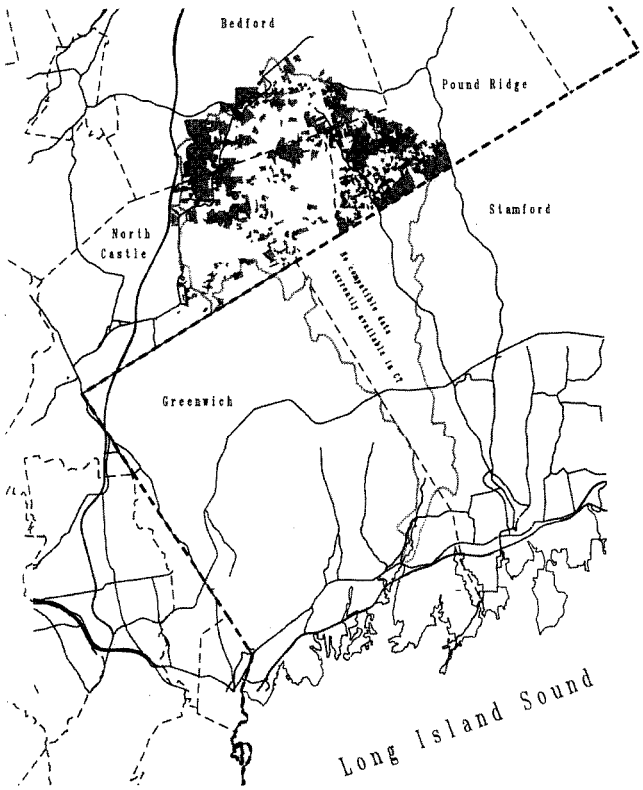
Does the stream running through your yard change when it crosses into your neighbor's property?

One of the maps we made shows the water sources for people living in this watershed and its vicinity. The watershed in this sense extends up and down the coast and includes all the towns that depend on the reservoirs. Residents in the southern part of the watershed depend on a treated public water system that taps into reservoirs that collect water from the upstream area. The extent of human development in this area has surpassed the earth's ability to provide ample, safe water.

The households in the upstream portion of the watershed still depend on unfiltered well water. They rely on the sky and the earth to provide, filter and deliver water to their wells.

Where does your sewage go?

Water moves in a cycle. Much of what we use soon goes down our drains or is absorbed back into the earth. Another map we made shows how people living in the watershed handle their wastewater. In the northern catchment areas people use a septic tank and leaching field to digest their water before it filters back into the water table. They depend on the earth and its living systems to digest and purify their waste before it reaches their neighbor's well or reservoir.



Local agencies responsible for managing land and regulating development have barely begun the process of coordinating planning efforts throughout the watershed and have limited resources to analyze our long-term cumulative impact on the bioregion.

(Left) Developable or subdividable lots in the New York section of the watershed (Connecticut data not available).

The downstream, more developed, areas have exceeded the earth's capacity to absorb waste and must rely on man-made sewer and waste treatment systems. Whichever system is used, all of the outflow of the watershed eventually makes its way into Long Island Sound, an estuary severely taxed by the cumulative impact of development.

The line between these various systems might be called the "threshold of sustainability." It shows where we have chosen to develop with greater density than the land can sustain. We now know the carrying capacity of the land and must make conscious choices when we push the land beyond that capacity.

What is your town's master plan? Do you want to live in it?

The Phantom City is the future that would happen if every master plan, zoning regulation, capital plan, child's daydream and landowner's vision came to fruition. This Phantom City is present, yet invisible. It is the product of considerable public effort and expense; it affects our taxes and land values, and it defines the future we plan to pass on to our descendants.

At present there is no practical way to see that Phantom City for any town, much less for the whole watershed. The Trust is beginning the process of visualizing that Phantom City. We are assembling the tax lot maps of five towns and cross referencing them with local master plans and zoning ordinances to identify all the lots that are currently considered appropriate for subdivision.

We don't inherit the land from our ancestors. We borrow it from our children.

Through the efforts of coalitions of government and citizens' groups (such as the one that led this study) and with the use of new information and communications technology, it is possible to comprehend the pattern of life in a region, assure ourselves that the phantom cities envisioned in our long-term plans are the ones we want to leave to our descendants and to monitor and minimize our impact on the earth.

Already the forests that were clear cut by our forebears have begun to regenerate. Wildlife is returning to the land. A fish ladder is planned to allow migratory salmon to return to the Mianus. Hundreds of citizens are becoming active in planning and environmental issues. Many of us are altering our lifestyles so we live more lightly on the land. There are many maps to create,many questions to ask, many decisions to make. We are just beginning truly to inhabit the places on earth we call home.