Yale School of Forestry and Environmental Studies

URBAN ECOSYSTEM MODULE 2018

New Haven, Connecticut

Week 1: August 6-9
Week 2: August 13-16
Week 3: August 20-23

INSTRUCTORS AND TAs

Gaboury Benoit, Professor

Colleen Murphy-Dunning, Director, Hixon Center for Urban Ecology

Amity Doolittle, Senior Lecturer

Chris Ozyck, URI Associate Director

Katie Beechem and Will Tisdale, URI GreenSkills

Peter Umunay, PhD, TA

Gioia Connell, TA

Genora Givens, TA

Chloe Hannah, TA

AJ Hudson, TA

Paul Rink, TA

Leandro Vigna, TA

CONTENTS

I. SCHEDULE 4

II. WHAT TO BRING (AND NOT BRING) 5

III. MONDAY MORNING 5

OVERVIEW 5

BEAVER PONDS WALKABOUT 14

IV. MONDAY AFTERNOON 18

PLANT IDENTIFICATION 18

V. TUESDAY 21

GPS & GIS: TREE AND BIOSWALE INVENTORY AND ANANLYSIS 21

GPS DATA COLLECTION 21

GIS WORKSHOP – TREE, BIOSWALE AND PEOPLE 34

VI. WEDNESDAY MORNING 37

URBAN INFRASTRUCTURE ANALYSIS 37

TRASH INVENTORY 38

VII. WEDNESDAY AFTERNOON 42

NEW HAVEN PARK OBSERVATION 42

VIII. THURSDAY 62

ENVIRONMETAL RESTORATION 62

IX. APPENDICES 66

POISON IVY IDENTIFICATION 66

ADDITIONAL READING 67

I. SCHEDULE

	Monday	Tuesday	Wednesday	Thursday
8:15 AM	Welcome	Ice breakers	Ice breakers	Ice breakers
8:30 AM				
8:45 AM		Plant talks	Plant talks	Plant talks
9:00 AM	Overview & BPP			
9:15 AM	NH History & EJ			
9:30 AM		GPS Management Tool	Litter Analysis	
9:45 AM				URI talk
10:00 AM				
10:15 AM	travel to BPP			travel to BPP
10:30 AM	Walkabout	GPS Street Trees		Invasive Vegetation Removal
10:45 AM				
11:00 AM				
11:15 AM				
11:30 AM		GPS Bioswale Siting		
11:45 AM				
12:00 PM				
12:15 PM			Park1 Observation	Lunch Community
12:30 PM	Lunch/report out	Lunch		
12:45 PM				
1:00 PM	travel to SCSU			
1:15 PM	Plant ID intro	GIS Exposure/ Trees, Census, Stormwater system	Park2 Observation	Habitat Planting
1:30 PM				
1:45 PM	travel to BPP			
2:00 PM	Plant ID practice			
2:15 PM			Park Observation Report Out	
2:30 PM				
2:45 PM				
3:00 PM				
3:15 PM				
3:30 PM	Stormwater Field			
3:45 PM		GIS Group presentation in Bowers		
4:00 PM	return to Bowers			return to Bowers
4:15 PM	Sewershed delimitation			
4:30 PM				
5:30	Dinner at Yale Farm	Dinner at West Campus Landscape Lab	Dinner at East Rock Park	

II. WHAT TO BRING (AND NOT BRING)

Every Day

- **Mods Urban Ecosystem Manual (i.e. this book)!**
- Lunch/snacks/drinks (On Tuesday and Wednesday, you can also purchase food at the carts.)
- Rain gear or sun block depending on weather
- Comfortable footwear - **You will be walking and biking**
- Notebook/clipboard and pencil or pen

Thursday: Rehabilitation of an Urban Park

The rehabilitation of Cherry Ann and Beaver Ponds Parks will require hard physical work. We will provide you with work gloves and the necessary tools. Please wear sturdy footwear and appropriate clothes to get dirty in. You will likely be in contact with poison ivy and biting insects, wearing long pants and closed-toed shoes will minimize your exposure.

III. MONDAY MORNING

Overview – Gabe Benoit

Comparing Mods: Urban vs. Yale-Myers Ecosystem Measurement

The purpose of this module is to familiarize you with field methods for analyzing **urban ecosystems**. It is intended to complement the Yale-Myers Forest Ecosystem Measurement module, which examines undeveloped ecosystems. Another important difference is that the Yale-Myers module focuses on the scientific method and quantitative analysis, while the urban ecosystem module gives qualitative analysis greater prominence. This division of topics is largely arbitrary, and does not reflect an underlying difference in the nature of urban and non-urban ecosystems. Importantly, both modules share a focus on the ecosystem as a framework and unit of analysis. Because of this overlap, you should read the introduction to the Yale-Myers mod if you have not done so already.

The Development of Urban Ecology

Traditionally, ecosystems were studied in the absence of human influences. People were viewed as existing apart from nature and as causing strictly negative impacts, particularly in urban areas. Increasingly, it is recognized that humans can be considered as just another species, albeit one with a major impact on ecosystem structure and function. In geology we increasingly talk about the “Anthropocene”, an era dominated by human influences. Today, an effort is underway to apply classical principles of ecology to understand human-influenced ecosystems. In this module we will

explore standard ecological concepts such as succession, ethnology, organization and regulation of communities and ecosystems, limiting and regulating factors, biogeochemical processes, biodiversity, gradients, spatial heterogeneity, and population characteristics (e.g., life history strategies, growth) in the greater New Haven ecosystem with a special focus on the Beaver Ponds system and the park that surrounds it.

The concept that urban areas can be viewed and studied as ecosystems is relatively new and still not widely practiced. For example, only 2.5% of papers published in nine top ecological journals in the period from 2005 - 2010 concerned urban systems[1]. Nevertheless, the idea of bringing people and the built environment into the mainstream of ecology is growing rapidly and will be important during your professional careers.

At FES, we examine urban and industrial systems with both top down and bottom up approaches. The former, often employed by industrial ecology, uses large databases, works at a regional to global scale, considers people as populations (i.e., demographically), and is of necessity empirical. The bottom up approach, which includes most urban ecology, works at spatial scales from plots to neighborhoods, generates new data, considers humans as individuals or small groups (e.g., families), and is able to conduct experiments (because of the smaller spatial scale). We consider these two approaches to be complementary, and their coexistence within the School is indeed one of our strengths. Our students are encouraged to use and integrate these analytical frameworks. However, because Mods is about field activities, all of our work this week will be urban ecology rather than industrial ecology.

A Note on Sites: Beaver Ponds and other New Haven parks

The field methods you use in this module all provide means to characterize ecosystems and to understand their structure and how they function. Most of this module's exercises take place in public spaces of New Haven with a particular focus on the areas around and associated with Beaver Ponds Park. These areas were selected for logistical reasons. They are nearby, have a long and varied history, and exhibit a variety of urban neighborhood types. The goal is to apply a range of ecosystem analysis tools at a few locations, building several layers of understanding and looking across a spectrum of temporal and spatial scales. Almost any urban area could be evaluated in a similar manner. In fact, the last exercise is an opportunity to apply these learned skills on nearby park sites, either Cherry Ann Park or the Urban Oasis, both within Beaver Ponds Park.

Guest Lecture by Amity Doolittle

Monday morning will include a short lecture on two topics aimed at helping you understand the human impact on the landscape. First, we being with a broad look at the history of the environmental movement, focusing both the positive and negative aspects of the movement. We will celebrate the protection of wildlands

---

[1] Mayer, P. (2010) Urban ecosystems research joins mainstream ecology. *Nature* **467**: 153

and decades of strong environmental protection policies that grew out of the work of environmentalists and scientists. But we will also note the racist history of the environmental movement, explore current concerns about environmental justice and reflect on how the ways we define the environment, and the what we believe to be the "right" use of resources, will inevitably impact different groups of people in different ways. Second, we will narrow our focus and learn about the social ecology and environmental history of the urban landscape in two neighborhoods surround Beavers Ponds Park: Newhallville and Beaver Hills. Understanding the history of urban development in these areas will help you understand the present-day landscape of the city that you will call home for the next two years, as well as some of the environmental challenges the city now faces[2].

[2] Addition readings and useful information on USA housing policies and the effects of redlining on housing and violence in American cities see the Appendix section

Beaver Hills:
From Farmland to Designed Suburb

Farmland outside New Haven, 1940

In 1908 the Beaver Hills neighborhood grew out of farmland on the rural fringe of the city. The growth of the neighborhood was emblematic of a period of urban development when trends favored increased coordination and control. Dr. Irving Mead, who inherited the 100 acres of farmland from his father, founded the Beaver Hills Company and sought to achieve a private mode of community regulation by placing **restrictive covenants** on the property deeds that shaped the urban landscape in distinct ways.

Beaver Ponds Park

1911 Sanborn insurance map shows the absence of development in the Beaver Hills area

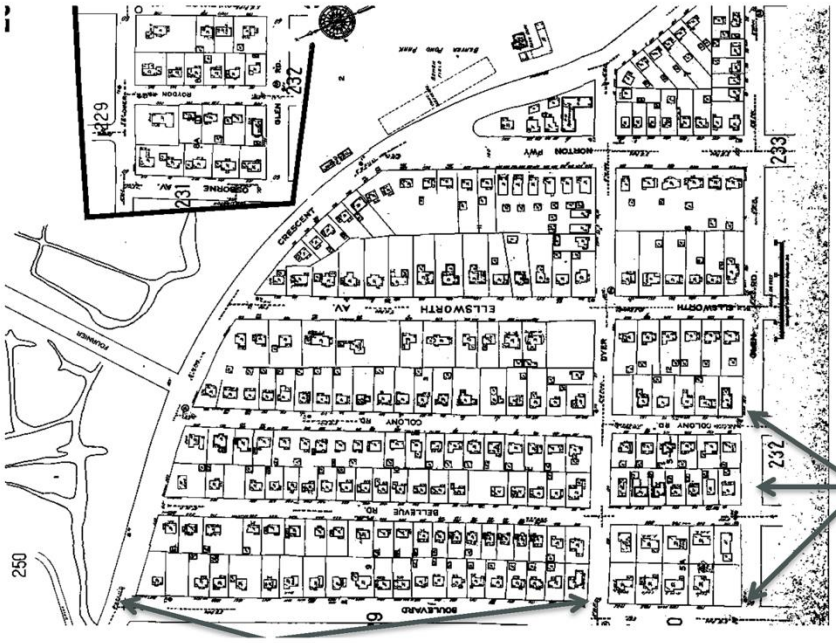
Undeveloped building lots under the name of **"Beaver Hills Company"**

Credit: Amity Doolittle, 2011

The Beaver Hills Company articulated its vision of a planned community in its advertising brochure:

"The neighborhood will be developed as a whole, so that it may be harmonious, and the effect of each house heightened by the general plan. A uniform building line will add to the attractiveness of the wide streets by broad lawns. While individuals will be given every reasonable freedom in securing a house to his own taste, eccentricities and undesirable cheapness of design will be barred from the neighborhood"

~Beaver Hills Company Advertising Brochure, 1908



Sanborn Fire Insurance maps of Beaver Hills, 1973.

Compare this 1973 Sanborn fire insurance maps with the 1911 map (on previous page).

Note the uniformity in housing lots and in placement of houses within the lots.

Also note the creation of new streets after Ellsworth, Colony Bellevue and Boulevard.

Note the extension of streets from Dyer to Crescent.

Restrictive Covenants and Social Norms

Buying a home in the Beaver Hills neighborhood required signing a contract that specified that all houses must be set back 30 feet from the curb, all building plans had to be approved by the company's architect, the minimum cost of the house had to be $7000 (later this was raised to $9000), houses had to be single-family only, and had to be built within a specific time period. These restrictions effectively signaled social norms of acceptable types of people and quality of homes that would be allowed in the Beaver Hills community.

Credit: Amity Doolittle, 2011

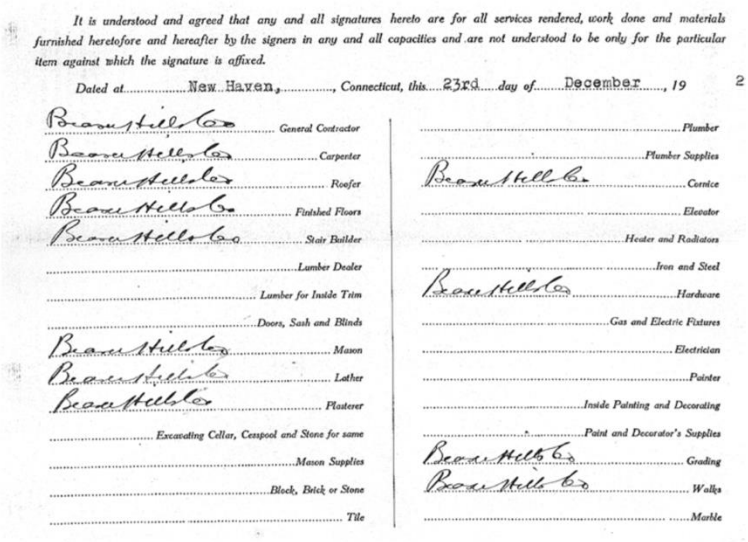
Ellsworth Avenue with mature street trees and large, even set-backs between houses and sidewalk is a emblematic of the homes built in the Beaver Hills neighborhood.

"The neighborhood will be developed as a whole … A uniform building line will add to the attractiveness of the wide streets by broad lawns."

~Beaver Hills Company Advertising Brochure, 1908

Large-single family homes on Winthrop Street in the Beaver Hills neighborhood with even set backs between the houses and the side walks.

Credit: Amity Doolittle, 2011



It is understood and agreed that any and all signatures hereto are for all services rendered, work done and materials furnished heretofore and hereafter by the signers in any and all capacities and are not understood to be only for the particular item against which the signature is affixed.

Dated at New Haven, *Connecticut, this* 23rd *day of* December, *19* 2

Beaver Hills Co. ..... *General Contractor*	..... *Plumber*
Beaver Hills Co. ..... *Carpenter*	..... *Plumber Supplies*
Beaver Hills Co. ..... *Roofer*	Beaver Hills Co. ..... *Cornice*
Beaver Hills Co. ..... *Finished Floors*	..... *Elevator*
Beaver Hills Co. ..... *Stair Builder*	..... *Heater and Radiators*
..... *Lumber Dealer*	..... *Iron and Steel*
..... *Lumber for Inside Trim*	Beaver Hills Co. ..... *Hardware*
..... *Doors, Sash and Blinds*	..... *Gas and Electric Fixtures*
Beaver Hills Co. ..... *Mason*	..... *Electrician*
Beaver Hills Co. ..... *Lather*	..... *Painter*
Beaver Hills Co. ..... *Plasterer*	..... *Inside Painting and Decorating*
..... *Excavating Cellar, Cesspool and Stone for same*	..... *Paint and Decorator's Supplies*
..... *Mason Supplies*	Beaver Hills Co. ..... *Grading*
..... *Block, Brick or Stone*	Beaver Hills Co. ..... *Walks*
..... *Tile*	..... *Marble*

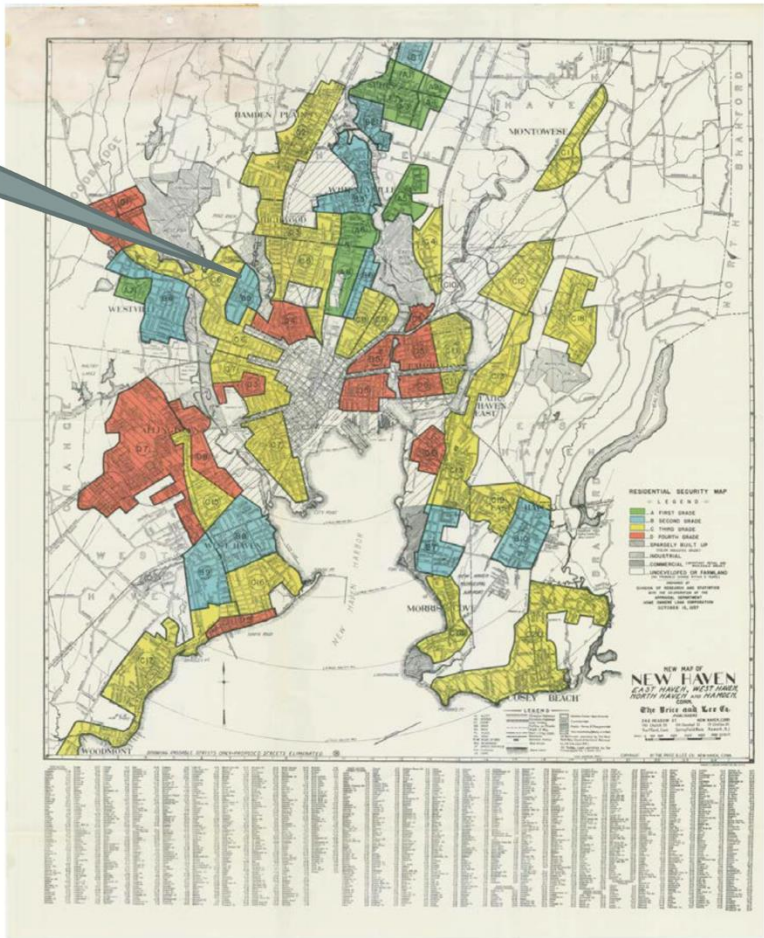
This page from a Beaver Hills Company deed illustrates how buyers chose to have the Company manage the details of the construction of their new homes. Thus the Company could ensure that "cheapness of design" was avoided and that the house met the standards articulated in the restrictive covenant.

Beaver Hills

In 1937 Beaver Hills received a favorable rating (blue color) by the Home Owners Loan Corporation, which categorized neighborhoods as good or bad investments for federally backed mortgages based on race and housing conditions.

"Blue areas, as a rule, are completely developed. They are like a 1935 automobile *still good*, but not what the people are buying today who can afford a new one. They are the neighborhoods where good mortgage lenders will have a tendency to hold loan commitments 10-15% under the limit."

~ http://salt.unc.edu/T-RACES/colormap.html

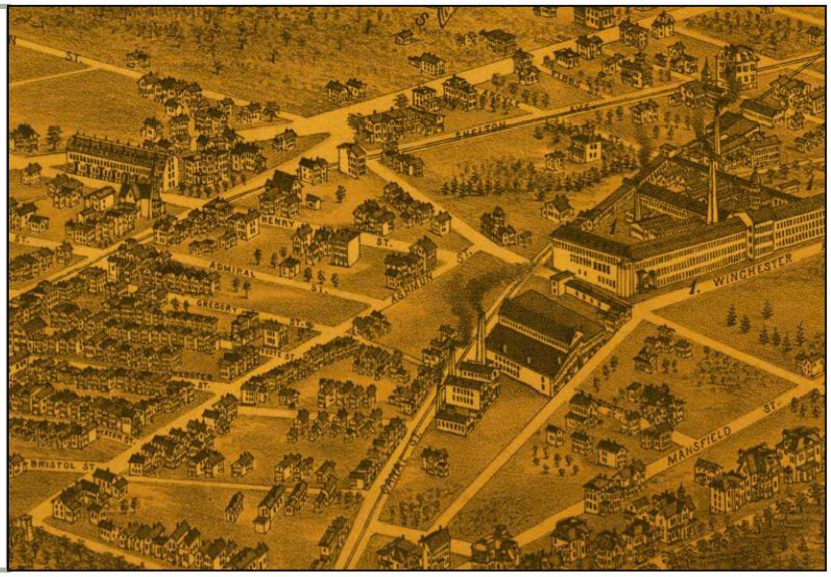


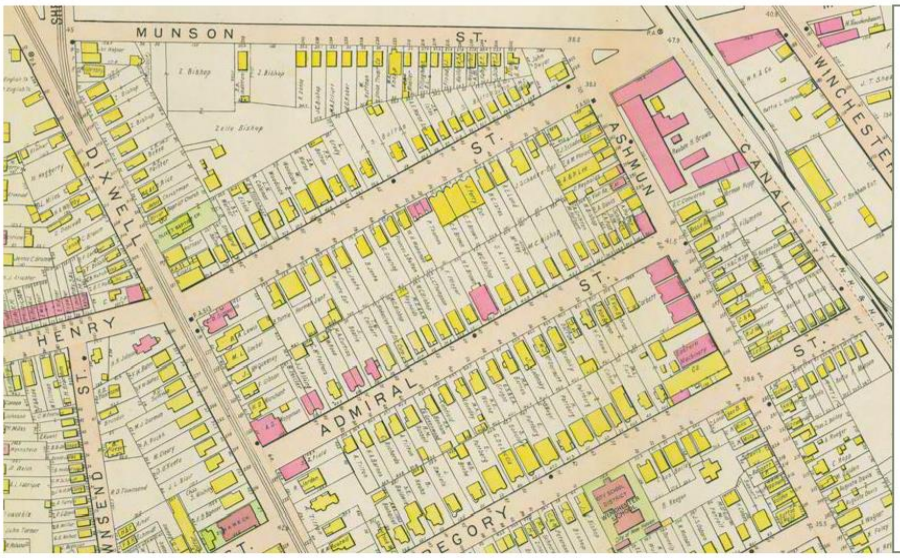
Credit: Amity Doolittle, 2011

Early Expansion:
Industrialization and Newhallville

The Newhallville neighborhood grew up as the industrial heart of New Haven. In the late 1800s houses were built to meet the ever-growing labor force for companies such as George Newhall's Carriage Emporium and Winchester Repeating Rifle.

~Right: 1879 Map of New Haven by O.H. Bailey and J.C. Hanzen





Newhallville illustrates the relationship between industrial growth and the emergence of a large working-class, residential neighborhood emblematic of the late 19th century.

The 1911 Sanborn Fire Insurance map (above) shows the density of long and narrow, or shotgun, houses which developers favored as it allowed them to maximize the number of houses built on one street. The construction of shotgun houses slowed during the early 20th century, driven in part by the widespread ownership of cars that allowed people to live farther from their work.

Credit: Amity Doolittle, 2011

In an era where nearly 75% of new Haven's industrial workers relied on walking as the principle mode of transportation there was a high demand for houses near industrial plants. Boarding houses and multi-family houses were built in the mid 1880s by land speculators who anticipated the growing need for workers' houses.

1914-1918—Workers at shift change at Winchester (left) and building Browning machine guns (right)

As demand for the rifle that "won the west" swelled so did the residential portion of Newhallville. By 1887 the company had a plant covering several blocks and employed more than 600 workers. By the early 20th century, the firm ranked among the nation's largest and most successful armorers. The plant covered more than six city blocks, and employed over 1000 people.

Credit: Amity Doolittle, 2011

Beaver Ponds Walkabout

This morning's activity will give you and your classmates a chance to explore this park and its storied past, because it will serve as our main field site for the week. At 109 acres, Beaver Ponds Park is large enough to be considered a boundary park, because it is located between neighborhoods rather than inside of a single community (see map). As context, 109 acres is a quarter the size of East Rock Park and an eighth the size of New York's Central Park. Ecologically, it's the largest green space and water body between New Haven's East and West Rocks, and some of New Haven's most densely populated neighborhoods are its immediate neighbors. Ten stormwater culverts replenish the park's namesake ponds with runoff from these neighborhoods.

Beaver Ponds Park is a good example of how views of a particular urban landscape can vary among different interest groups and change over time, and how those perspectives shape what happens with open space. When you visit the park today, you will see both well-manicured athletic fields and relatively wild natural areas surrounding a red maple floating bog, but it hasn't always been this way. This morning's exercise will help you uncover clues in the park to its hidden past, and connect that past to build a broader understanding of how the park came to be as it is today, both in terms of its ecological and social functions. In addition, it offers you a chance to enjoy a New England summer day with your new classmates!

Although this activity is an unrestricted exploration of the park, we are providing a framework to help you observe the park with a group of your classmates in a systematic way. The structure of the activity is as follows: you will visit six stations throughout the park, each with a TA; and you will use a provided worksheet and map with a couple of guiding questions for you to think about as you walk and make observations. At the end, each group will share some of their most interesting finds with the rest of the class on a large map.

Your new understanding of Beaver Ponds Park will serve as a baseline for the remaining activities this week. On Tuesday, you will census trees in the neighborhoods around the park. On Wednesday, you will return to Beaver Ponds Park to learn about, characterize, and clean up litter. You will also visit two different New Haven parks and compare your observations there with what you see in Beaver Ponds today. Then on Thursday, you will get a chance to help one of two community groups based in the park – Friends of Beaver Ponds Park and the Cherry Ann Greenspace group. Throughout the week's activities, the Park will serve as a geographic focus, tying separate approaches together.

Beaver Ponds Context

The map below shows Beaver Ponds Park and its surrounding neighborhoods. As you explore the park, we will discuss how this history shapes what we see today.

*Scale is approximate

Walkabout Worksheet

Throughout your walk, mark on your map features from the following list. You each have an individual map in your book, but will have a larger map back in Sage to work on as a group.

People

- Based on whom you see in the park today, what is the most common use of the park?
- Based on the park's infrastructure, what do you think are the top three most common activities in the park regardless of time of use?
- How might human uses change at different times of day? Days of the week? Seasons of the year?

Plants

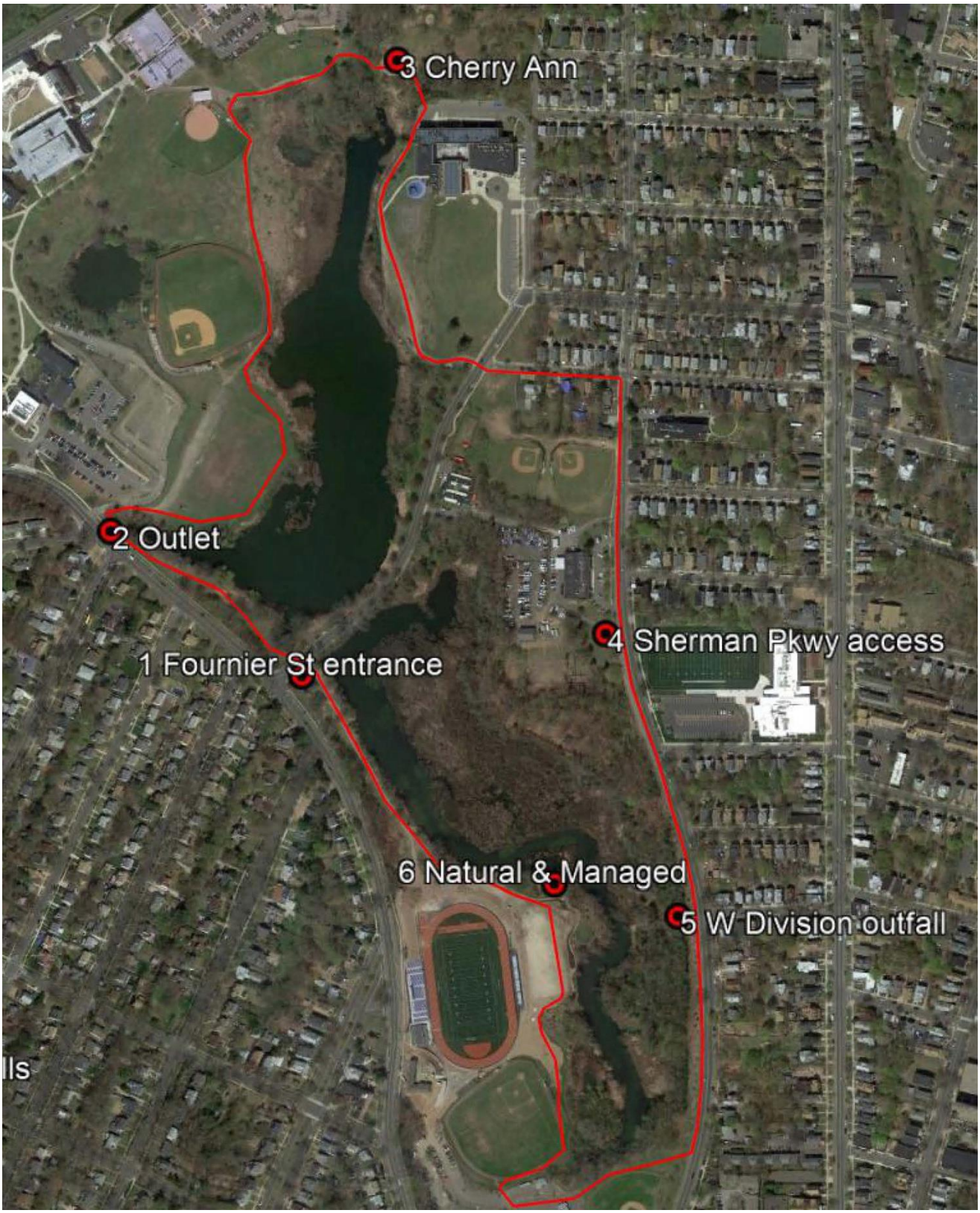
- Identify a favorite tree or plant. If you don't know its name, collect enough information to identify it later (picture, site context, notable features)
- Mark the biggest tree you see on your map and its species
- Take a photo of poison ivy and mark it on your map

Hydrology

- Mark any stormwater outfalls you observe that are bringing water into the ponds (there are 9 total, but most are relatively hard to see) and outflows exiting the pond
- Draw arrows signaling the direction of the water flows

Context

- How might the park boundaries have changed over time? Mark where you find signs of disturbance or encroachment of other facilities into parkland.
- Of all the park's entrances, where did you feel most welcome? Least welcome?



BEAVER PONDS PARK

IV. MONDAY AFTERNOON

Plant Identification – written by Philip Marshall[3] and Tom Siccama[4]

Plants (especially woody plants) are all around us, visible every day all the time. Therefore, some common knowledge about plants should be a part of the basic curriculum at F&ES. Most of the activities at F&ES relate in one way or another to plants. Birds sit in them, insects eat them, and industry hopefully tries not to damage them via air or water pollution. Some people try to grow them to make money and others try to simply save them from being cut down. Knowledge of local plants of southern New England has both short range and long-range implications. First, a considerable number of our graduates continue to work east of the Mississippi, where these species grow and thus will be around them for life. Second, many of our classes use the local plants as examples of ecological and silvicultural patterns and processes. Woody plants are used in Mods because they are the only group of organisms suitable to identification in the time frame and resource frame available in the Mods. The plants we identify do not require the use of microscopes, thick technical books, or the presence of flowers.

In plant ID we emphasize that plants have strategies and life histories which fit them into the land they are growing on. Thus, in addition to determining the names of the plants (common and scientific), their ecology is extremely important. The School has courses about conservation and species diversity. The trick to all the theoretical and mathematical approaches is that someone somewhere and somehow has to be able to identify the organisms which comprise “biodiversity”. Knowledge of the methods of doing this is one of our objectives.

The tool for identifying plants is the use of the plant identification key, sometimes called a dichotomous key. This is simply a tool and I hope we stress that it is meant to be used as such. It is a means to an end. In and of itself using a key can be very boring and very simple. Yet sometimes it can be very difficult. Keys are often full of technical jargon and the user must use her best judgment to decide whether a feature matches that described in the text. Not every plant will key out perfectly every time and often the user must decide if the description is "close enough". The key provided for you uses very little technical jargon.

The approach we use in plant ID involves calmness and patience and is a continuous flow. I encourage people to work in small, “socially functional groups” in which students work together identifying plants in the field.

Lastly, the plant ID exercise requires just a bit of public speaking practice. For this, each student is assigned a common plant species on which they give a 2-minute presentation to the rest of the group. This is a kick off to the sorts of communication skills you will be required to use throughout your time at the F&ES.

---

[3] Philip Marshall was a PhD student class of 2011 Yale FES

[4] Thomas Siccama spent 42 years at Yale FES as a professor of forest ecology and director of field studies

There is a certain citizenship component to plant ID. A lot of our students end up on various boards and commissions on the local or state level. They involve themselves in these activities after graduation because of their interest in the environment. Many times, they are called upon due to their “forestry education” to be knowledgeable about various land planning and wetlands and other citizenship activities for which knowledge of the plants is more than helpful.

Schedule and Activities

Monday afternoon, following the “Walkabout”, after some preliminary introductions and explanations, we will learn to use a "key" - a step by step process used to identify plants. We will use this key to identify the plant.

You will also be assigned a plant about which you will give a 2 min talk on one of the following three mornings. It is suggested that each of you get on the web in the late afternoon/evening and search out some data about your assigned plant in preparation for the talk. Some of the information you might talk about is in the following list. Try to make the short talk interesting and informative. Making oral presentations will be a significant part of the Yale experience and we would like to get started by doing this little learning and practicing experience.

Tues, Wed and Thurs at 8:15 we will gather in SAGE Bowers and one third of you will give your short talks each morning. Be prepared. Time will be limited. Be succinct. Be smooth.

Ecological Characteristics of Plants Species

1) Scientific name
2) Common names
3) Typical habitat (i.e., upland woods, old fields, roadsides, marshes, etc.)
4) Growth form (tree, shrub, herb, vine)
5) Form or shape of mature individual
6) Growth rate (fast, slow)
7) Age and longevity of shoot
8) Height at maturity
9) Reproduction (ecological implications)
    a) sexual
    b) vegetative
10) Dissemination
    a) sexual (mechanism - water, wind, etc.)
    b) vegetative propagules
11) Protective mechanisms (from a plants point of view, thorns, spines, toxins, etc.)
12) Successional stage typically associated with
13) Quick identification features (smells, color, thorns, etc.)
14) Tolerance of shade
15) Indicator species (i.e. of wetlands, dry lands, disturbed sites, salty soil, etc.)
16) Wildlife implications
17) Undesirable characteristics (from human perspective)
18) Aesthetic characteristics (leaf color, crown shape, etc.)

19) Resistance to (tolerance of) urban pollution
20) Native or introduced species
21) Known susceptibility to disease or insects
22) Nutrient subtleties
23) Human uses

Plant Identification Exercise

For the remainder of Monday afternoon, we are going to practice plant identification. Keep in mind that we are NOT testing how quickly or accurately you can ID the plants, but our primary goal is to help you learn how to use the dichotomous identification key. If you come across a plant that you cannot identify easily and the descriptions of used in the dichotomous key book seem too confusing, just move on to the next one. If you are more experienced with plant ID and all questions seem way too easy, feel free to help your classmates. Consider the 10 plants as opportunities to try a new skill; they are not a list you are expected to complete.

Instruction: Your TAs put labels throughout the site. Identify the plants using the dichotomous key book (one for each pair), and pay special attention to learning the vocabulary used in the book.

1:	6:
2:	7:
3:	8:
4:	9:
5:	10:

V. TUESDAY

GPS & GIS: Global Positioning Systems and Geographical Information Systems

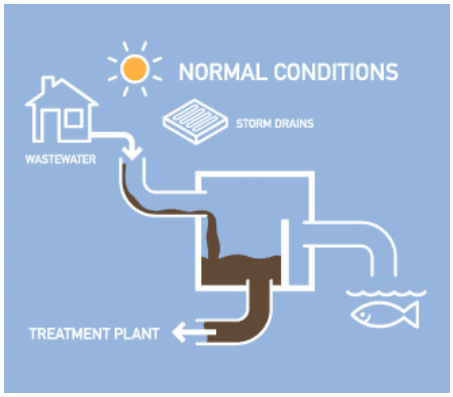
GPS DATA COLLECTION TUTORIAL

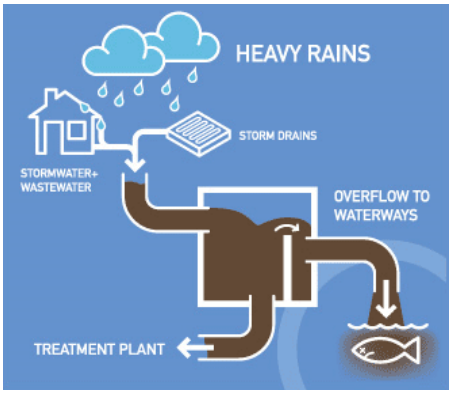
Bioswale sites inventory

Background

In cities, the built environment can radically alter natural ecosystem functioning. The hydrologic cycle provides a good example of the impacts of urban development on ecosystem function. The buildings, roads, sidewalks, parking lots, and driveways that we all depend on for our daily activities also increase the percentage of impervious cover in our ecosystem. Rainfall, which would normally absorb into the soil and return as baseflow to local streams and rivers, is prevented from doing so and instead is redirected into gutters and sewers.

There are two types of sewer systems into the City of New Haven- namely the combined and separate sewer systems. The combined sewer system relies on a single pipe to convey sewage water from buildings and stormwater runoff during rain events to a wastewater treatment plant. The combined sewage is treated and discharged into a local waterbody. In large rain events, the capacity at the treatment plant is exceeded and, in order to prevent backup into homes and businesses, relief outfalls throughout the system allow untreated flow to discharge into local waterbodies. This discharge of untreated combined sewage and stormwater is called a **combined sewer overflow**. According to a report by the Greater New Haven Water Pollution Control Authority, 43 million gallons of combined sewage overflow is discharged annually to waterbodies throughout New Haven (GNHWPCA 2016).



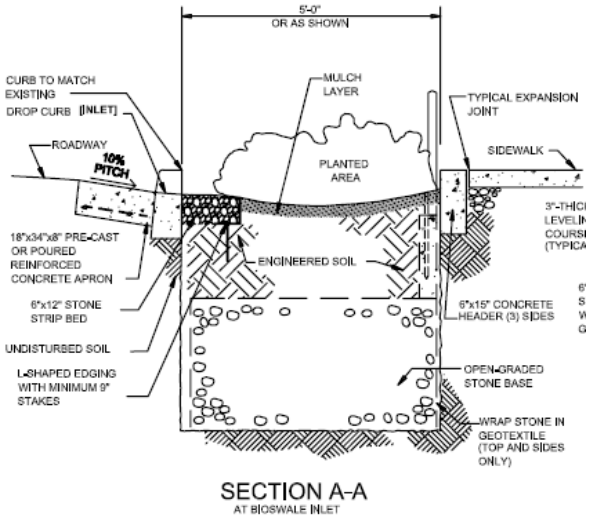


The second type of sewer system in the City is called a separate sewer system. In this type of system, there are separate pipes to convey sewage and stormwater. The sewage is conveyed to the wastewater treatment plant and the stormwater is conveyed, without treatment, directly to a local waterbody. While sewer separation is considered a solution to reducing combined sewer overflow,

storm sewer still carries pollutants, such as trash, animal waste, fertilizers, and sediments, picked up in the storm runoff to local waterbodies.

As a result, the City is planning and implementing green infrastructure as part of a comprehensive solution to stormwater pollution. Green infrastructure is an approach to managing stormwater runoff that views stormwater as a resource and takes advantage of natural processes, such as infiltration and evapotranspiration, to slow down and filter stormwater and prevent it from overwhelming sewer systems and polluting waterbodies.

One type of green infrastructure that is being implemented within the public right of way by the City is the bioswale. A bioswale is an engineered planted area designed to capture and filter stormwater from impervious surfaces. Right-of-way bioswales are located on sidewalks and capture stormwater as it flows down the street during rain events. Stormwater enters the bioswale through a curbcut, allowing the vegetation and soil to absorb the runoff.



The City has received a grant to install 200 bioswales in the downtown area.

The exercise that you will be participating in this morning is to collect field data that will assist the City with siting bioswales. The City needs to know where there is space in the right-of-way to build bioswales given the standard size of bioswales is 15 feet by 5 feet. Ideally, bioswales will be placed directly upstream of catch basins in order to capture the maximum volume of runoff. Therefore, the protocol you will be conducting seeks to identify impediments, measure the distance from the catch basins to these upstream impediments, measure sidewalk widths, and note any other characteristic of importance to bioswale installation.

Like the tree survey exercise, you will be using the Collector for ArcGIS app to collect data. You will be doing this exercise in pairs so it is only necessary that one person have access to the Collector app. If you haven't already installed Collector, follow the installation instructions on "Tree inventory"

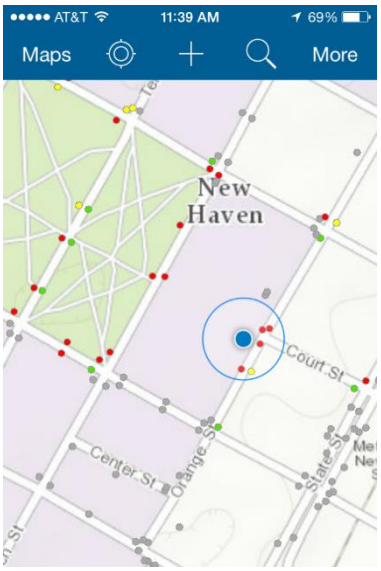
section. The map you will be downloading is called **"Bioswale Siting South 34"**. This map contains point data for all the catch basins within the area of interest.

Protocol

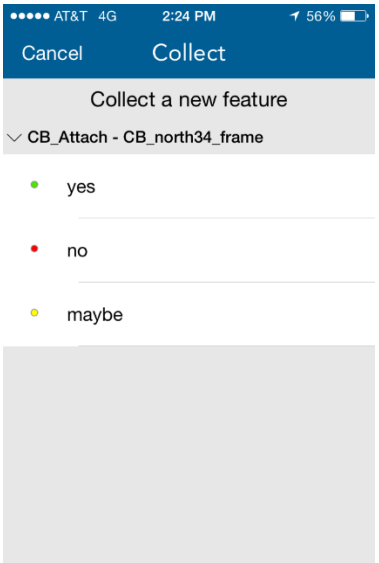
Materials: Tape measure, phone/tablet

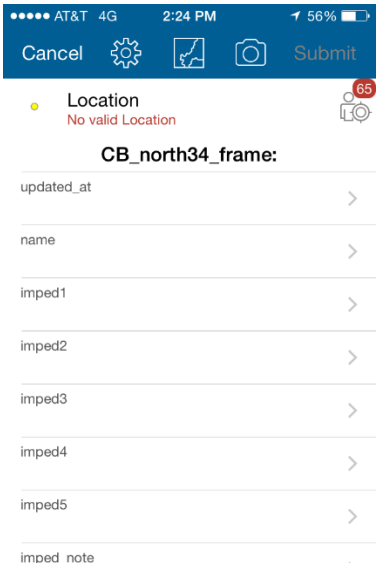
1. Identify catch basin to survey and measure 50 feet "upstream" with measuring tape.
    - To determine which direction is "upstream", observe the slope of the road. Which way would the water flow if it were raining? The answer is in the direction of decreasing elevation as 'water flows downhill'. Since the goal is to capture stormwater in a bioswale PRIOR to the catch basin, we want survey the area right before stormwater would enter the catch basin.
    - Place the end of your measuring at the edge of the catch basin and measure 50 feet in the direction of increasing elevation.

2. Locate this catch basin on the Collector map. (The catch basin should be gray indicating that information has not been collected yet for this point.)



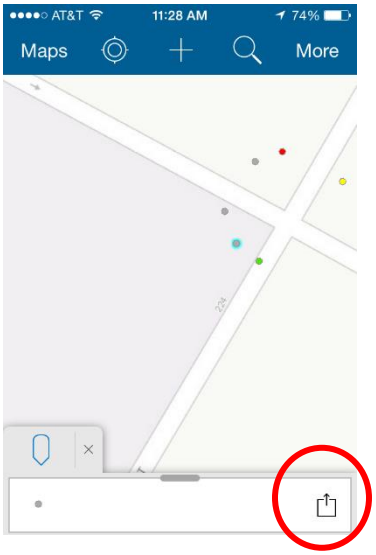
If the catch basin is not on the map, ADD a point. To ADD a point, click on the plus sign at the top of the screen (see figure on the left). Choose the 'maybe' feature (you can edit this later- see middle figure). The 'Edit' screen will open automatically and a point will be added close to where you are standing (see figure on the left). Continue to Step 4.



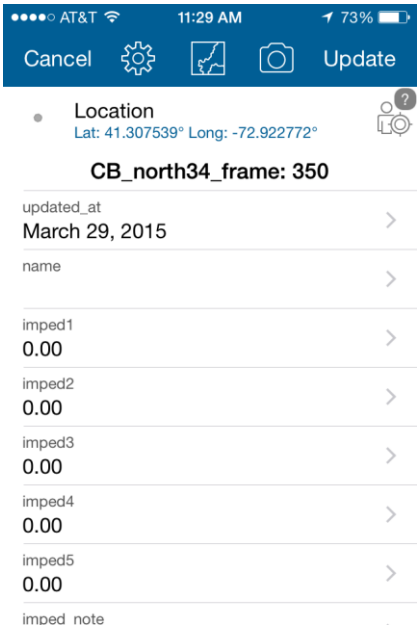


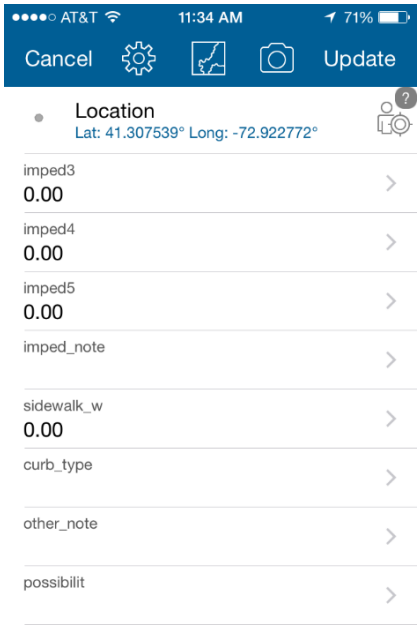
If the catch basin is on the map but not found in the field, follow Steps 3 and 4. Then go directly to Step 5-h and enter “Not there” in the ‘Other_note’ section. Select Update and move onto the next catch basin.

3. Click on catch basin. If you are not already in “Edit” mode, you will see a screen like below. Push the symbol circled in red. Select “Edit”.



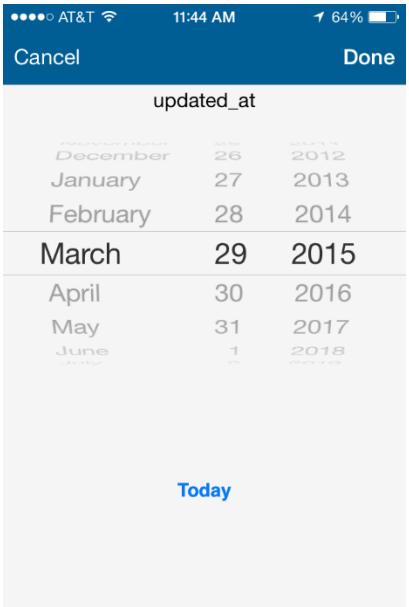
4. When you are in Edit mode, you should see the below screen.



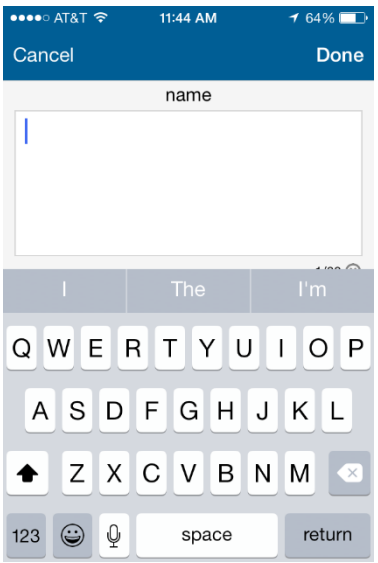


5. Fill in information accordingly:

   a. Updated at: Enter today's date.



b. Name: Enter the initials of your TA or group leader.

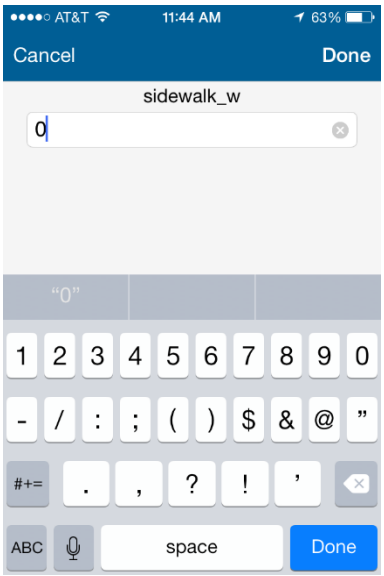


c. Imped 1-5: Enter the distance- in feet (round to the nearest foot)- to the first 5 impediments you encounter upstream of the catch basin. The following is a list of potential impediments you may encounter:

Impediment	**Shorthand**	**Notes**
Tree	tree (length of plot in feet)	If located in a tree pit, mark the impediment distance at the start of the tree pit and then list the length of the tree pit in the notes. i.e. Tree 5ft. If located in a curb strip, mark the imped distances as the center of the tree trunk and list the DBH of the tree in the notes. i.e. Tree 1.5ft DBH
Parking meter	meter	
sign post	sign	
telephone pole	tel pole	
Light post	Light post or light	
trash barrel	trash	
underground access panel (any kind)	panel	this includes all sizes
pedestrian decorative light post	ped dec	Only if within 5 feet from the curb.
Fire hydrant	hydrant	
Utilities (gas/water)	gas/water	sometimes hard to spot, keep lookout
Driveway/parking lot		Mark the impediment distance at the start of the driveway and then list the length of the driveway in the imped notes (similar to tree pits). i.e. Driveway 15ft

d. Imped_note: List the type of impediments, starting with the impediment closest to the catch basin. You can use the shorthand listed in the table above.
   e.g. meter, tree 5ft, sign, driveway 10ft, sign

e. Sidewalk_w: Measure the width of the sidewalk- in inches- from curb to edge of abutting property line.



f. Curb_type: Enter type of curb- granite, blue stone, concrete. If unknown, leave blank.

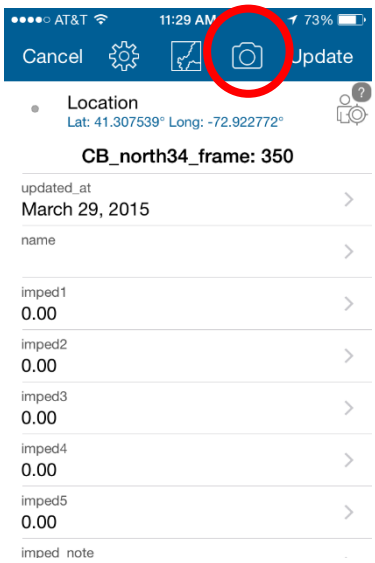
Curb Types	Shorthand
Granite	gran
Blue Stone/Slate	blue
Concrete	conc

g. Other_note: Any other piece of information that may be useful in making a decision on siting a bioswale in this location. Some examples include:
   Heavy pedestrian traffic
   Bus Stop
   Potential conflict with street parking
   Great site
   Large existing trees may be problem

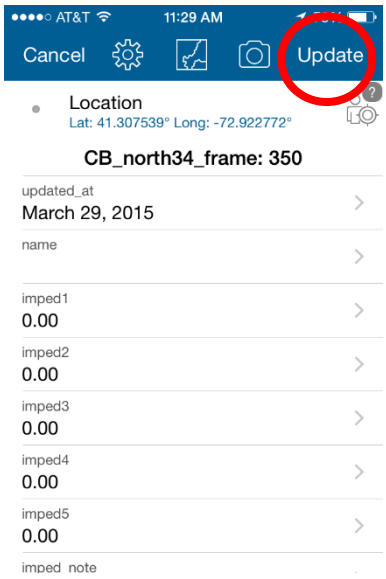
h. Possibilit: This is the most subjective piece of the data collection but is important. Basically, you are answering the question of whether or not a bioswale could fit in this location. Selecting:

i. “Yes” means that there is at least a 15-foot stretch of right-of-way with no impediments where a bioswale could be installed.
ii. “No” means there is no room for a bioswale.
iii. “Maybe” means there may be room but it would take working around an impediment or some other factor (bus stop, heavy pedestrian traffic, etc) may make this a less than ideal location.

i. Finally, take a picture of your site. Select the camera icon to access your camera and attach a picture to this file.



6. After you have entered all the data, click Update to save.



Tree Inventory

Using GPS enabled iPhones or Android phones, student teams will gather street tree data to contribute to a street tree inventory dataset. GIS is a very powerful tool, and allows us to perform statistical analysis

on spatial relationships, as well as compare areas such as neighborhoods, blocks, and zoning categories to one another. We can use the tree inventory information to run analyses useful to the city and URI in making management decisions, to target outreach to particular neighborhoods and blocks, and to monitor our planting and survival progress. Moreover, if a disease or pest infestation occurs, knowing the spatial distribution of species is crucial in addressing such problems.

Collector for ArcGIS app for iPhone and Android:

This guide is intended to get you up and running using the Collector for ArcGIS application for editing the URI street trees database. The Collector app allows users to efficiently gather point-based data in the field. For more detailed information about the Collector for ArcGIS application, see the Esri Help Guide at http://doc.arcgis.com/en/collector/.

The following instructions are specific to iOS (iPhone). Using Collector for Android is very similar. If you have questions about specific operations, ask your TA or visit ESRI's simple online tutorial at http://doc.arcgis.com/en/collector/android/collect-data/collect-tutorial.htm.

This section covers the following topics:

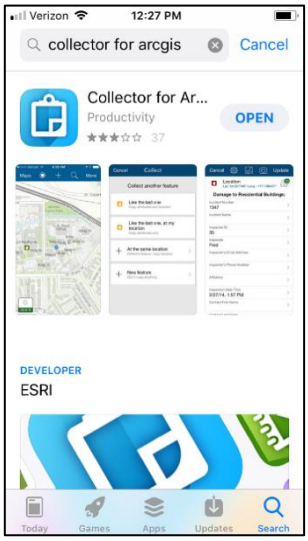
1. Installing the Collector for ArcGIS app
2. Logging in to ArcGIS Online
3. Opening a map
4. Editing an existing record
5. Moving a point
6. Deleting a point
7. Adding a point
8. Saving an edited map

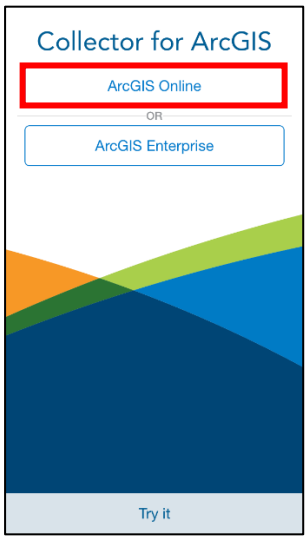
Install the App

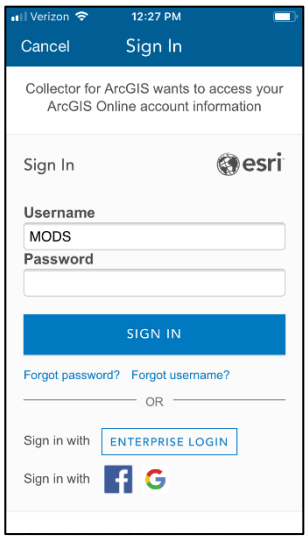
1. First, install the free Collector for ArcGIS application from the App Store or Google Play.

Log in to the Yale ArcGIS Online Account

2. Open the Collector app and select **ArcGIS Online** (*not* ArcGIS Enterprise).
3. Use **Username:** MODS
4. Use **Password:** m0dsm0ds *(that's a zero)* to log into the ArcGIS Online account.

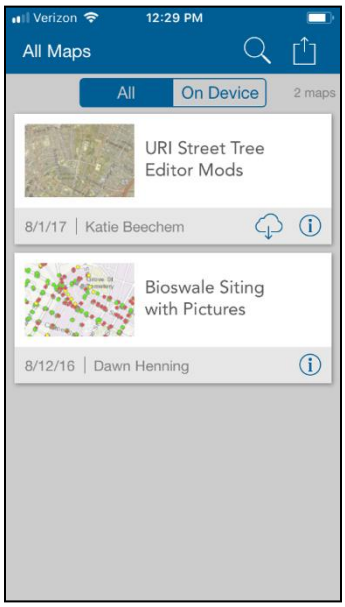


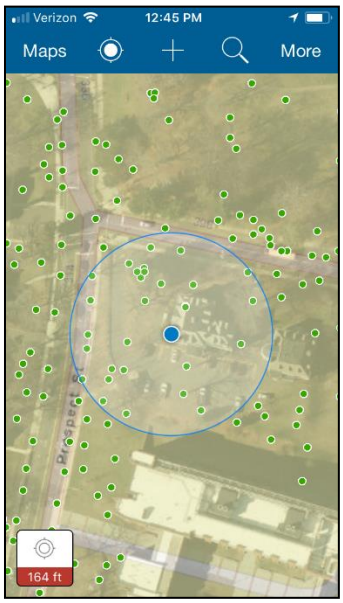




Open the Map to Access the Data

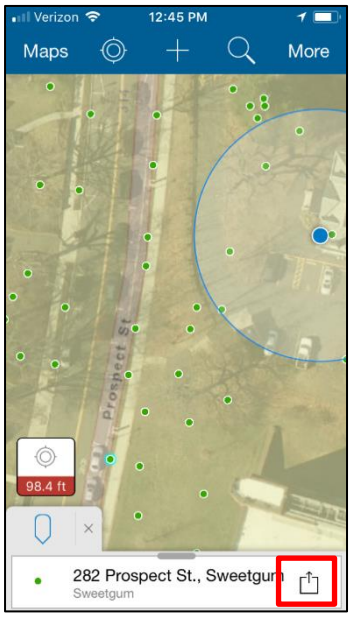
1. Click on the **URI Street Tree Editor MODS** map.
2. The street tree map will open and the GPS will immediately be used (click yes if you are prompted to turn on the GPS) to center the map on your current location. The trees will not be visible immediately. <u>Zoom in to see the trees, represented on the map as green points</u>.

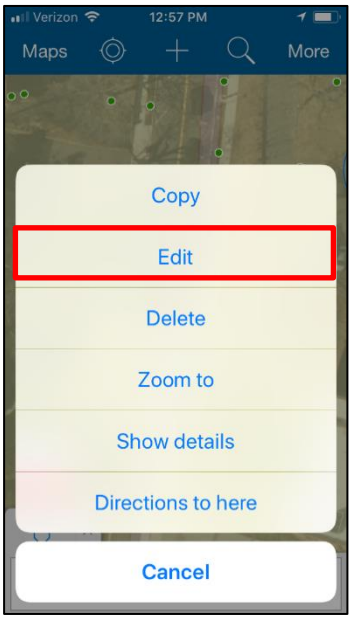




Editing an Existing Tree Record

1. To edit an existing tree feature, **touch the feature** to select it, then, in the pop-up box at the bottom of the screen, **touch the arrow** to view the item's details.
2. Touch the **Edit** link to edit the fields.

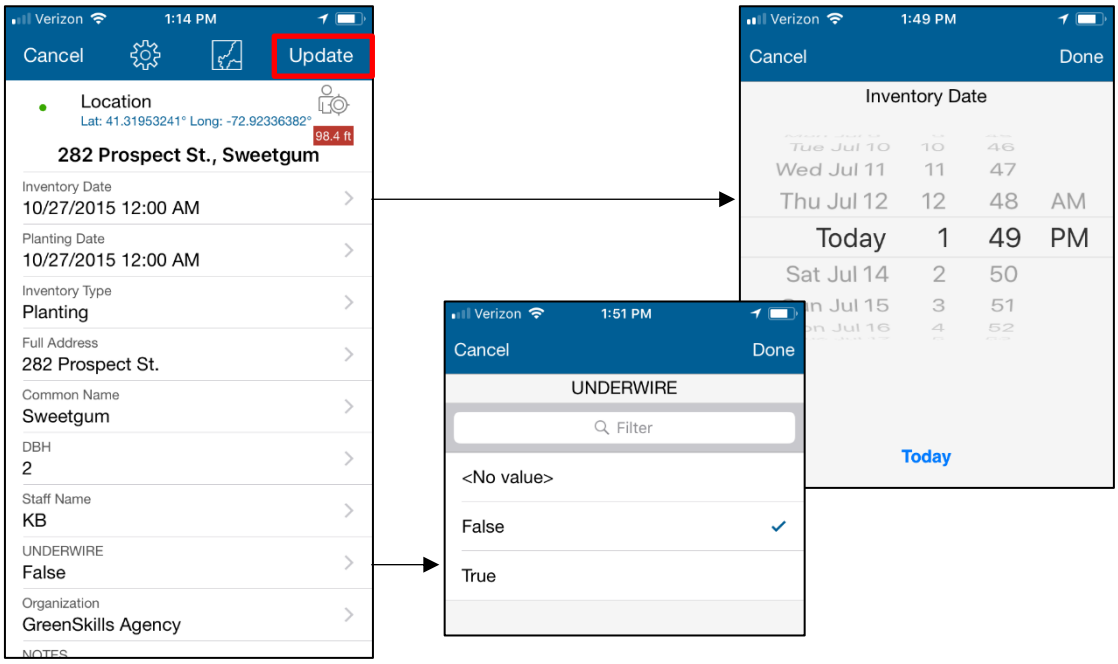




During the inventory exercise, please update the following fields:

a. **Inventory Date** → Today's date
b. **Planting Date** → Do not edit
c. **Inventory Type** → Inventory
d. **Full Address** → Add or correct the address if necessary
e. **Common Name** → Edit if necessary
    i. If the tree is still standing but greater than 75% of the crown is dead, change the common name to ***Dead**
    ii. If the tree has been removed and the stump remains, change the common name to ***Stump**
    iii. If the tree has been removed and the stump is no longer there, delete the point
    iv. If the tree is incorrectly identified, correct the common name
f. **DBH** → Measure the tree and change as necessary
g. **Staff Name** → MODS TA Initials
h. **Underwire** → Select **True** if there are wires overhead and **False** if not
i. **Organization** → Yale F&ES MODS
j. **Notes** → You may add notes about tree health, such as trunk damage or crown dieback. If the tree is an ash tree that shows evidence of the Emerald Ash Borer pest, note this with the initials EAB.

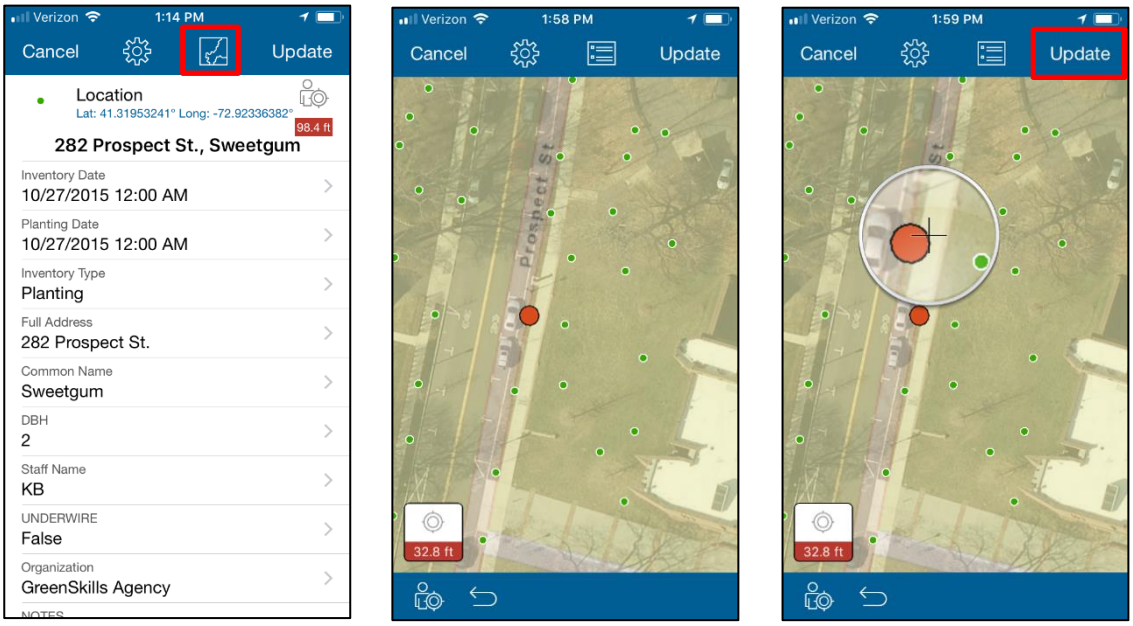
3. Once the edits are complete, touch **Update** to commit the edits.



Moving a Point After Editing Attributes

If a point is misplaced in the database, please use the following method to update the location.

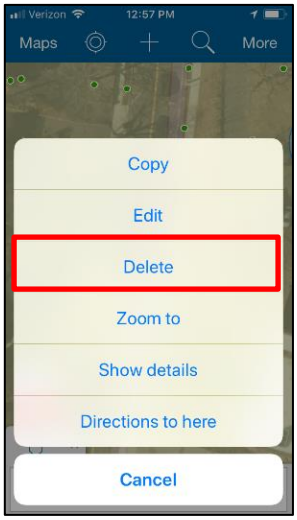
1. Zoom to a level that is comfortable for you to use and provides enough detail for you to place a point with accuracy.
2. Click on the point that you wish to move and select **Edit**.
3. Touch the **map icon** at the top of the editing panel. The point will appear large and red.
4. **Touch and hold the point** until you see the magnifying glass (which shows what is under your fingertip) and slide the point to its correct location.
5. Click **Update** to save the changes.



Deleting a Point

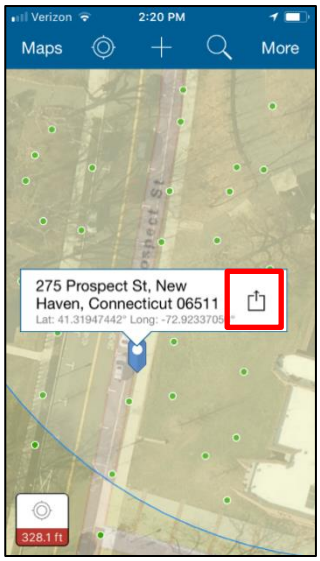
In some cases, there will simply be no tree, even though there is a point and a record for one. In these cases, use the following method to delete the existing point.

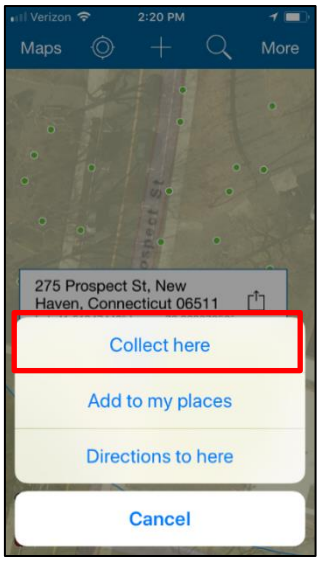
1. Touch the feature to select it.
2. Touch the arrow for the options menu.
3. Touch the **Delete** option and confirm.

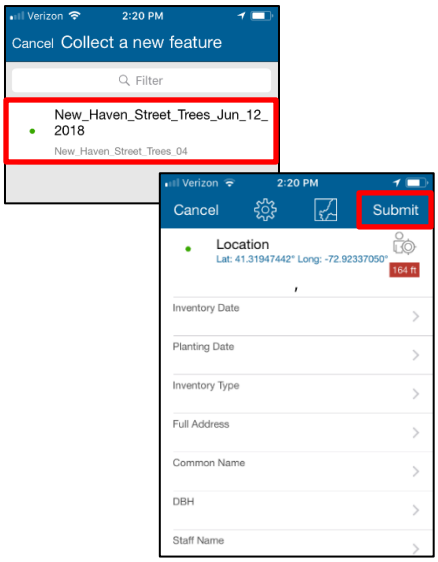


Adding a New Point

1. Zoom to a level that is comfortable for you to use and provides enough detail for you to place a point with accuracy.
2. To add a new point to the map, touch and hold your finger in the exact location where you want to add a tree point. A new point will be dropped in this location.
3. Select the street trees feature, and edit the attribute fields as you would with an existing record.
   a. If you do not know the common name of the tree, do not guess; select *Unknown.
   b. If the common name is not included in the list, select *Other and write the common name in the notes field.
4. If you need to move the point once you have edited the attributes, click on the map tool to reposition the point.
5. Click **Submit** to commit the edits.







Saving Your Edited Map

You are editing a "live" version of the street tree map in the field. The changes you make are automatically saved and synced. One of the most powerful features of the Collector app is that it allows multiple users to be working in and editing the map simultaneously. This also requires you to be very careful when making edits. There is no simple "undo" feature that can bring you back to an earlier version of the map. Measure twice, edit once!

GIS WORKSHOP – TREE, BIOSWALE and PEOPLE

Background

After learning tree and bioswale data collection using GPS enabled iPhones or Android phones, the goal for this workshop is to analyze and visualize data using the Geographic Information System (GIS). GIS is computer-based tool that allows us to identify and perform statistical analysis on spatial patterns and produce maps that explain the relationship between different variables within or across geographic areas. We will have two different workshops and each will focus on one dataset (tree or bioswale) from the morning exercise. The objectives of these two workshops are twofold: (1) familiarize students with the use of GPS and GIS to collect and analyze spatial information; (2) provide useful information to the city and URI for making social and environmental management decisions that target particular geographic areas (streets, neighborhoods and blocks) and people from different socio-economic backgrounds.

Workshop Overview:

Today's workshop will follow the structure below:

- **Introduction**
  - Learn what GIS is, when and why it is useful, and how it can be applied
- **Hands-on ArcGIS Exercise**
  - Use Web App on ArcGIS online to analyze and identify suitable sites for bioswale and impediments
  - Explore New Haven street tree, census, and historical maps in ArcGIS to understand how GIS can reveal patterns between environmental quality and demographics
- **Instructions and Data:**
  - Go to https://tinyurl.com/2018mods and click 'Download' and then 'Save File.'
  - Go to your Downloads folder. Right-click the "Urban MODS 2018 GIS Workshop" zip file and then click on "Extract All." Next, click "Extract."

- Open the files: (1) 'MODsGISTutorial_2018_tree.pdf' and (2) 'MODsGISTutorial_2018_bioswale. These two pdf documents provide all the instructions you'll need for using ArcGIS in today's workshop.

- **Definitions:**

GIS (Geographic Information Systems): A computer-based system that allows us to manage, analyze, and visualize any information that is spatially-referenced (AKA make maps). In its most simple form, a GIS is a collection of data that has locations (i.e., latitude and longitude) attached to each item.

ArcGIS: A computer software program created by Environmental Systems Research Institute (ESRI) for managing, analyzing, and visualizing spatial information. It enables the creation and maintenance of a GIS and is the most commonly-used program to work with GIS.

Spatial data: Any information that is tied to a specific location on Earth (AKA: anything that could be put on a map). For example, election results, supermarket locations, and information about roads are all spatial data if they are tied to specific places.

Vector data: Spatial data that represents discrete locations such as points, lines, or polygons.

Raster data: Spatial data that is represented by pixels with each pixel containing a different value (like an image or a map of temperatures).

Cartography: The science and practice of making maps; combining design and science to communicate spatial information.

- **Select Examples of GIS in Use:**

Global Forest Watch | World Resources Institute

www.globalforestwatch.org

Radical Cartography | Yale University Professor Bill Rankin

www.radicalcartography.net

Humanitarian OpenStreet Map | OpenStreet Map

www.hotosm.org

Yale Climate Opinion Maps | Yale Program on Climate Change Communication

http://climatecommunication.yale.edu/visualizations-data/

- **Resources at Yale:**

Student Interest Group:
The Spatial Collective

Centers and Programs:
Center for Science and Social Science Information (CSSSI)
Ucross High Plains Stewardship Initiative
Center for Biodiversity and Global Change
Map of Life
Center for Earth Observation
Data-Driven Yale
Digital Humanities Lab

People:
Miriam Olivares, *GIS Librarian at CSSSI*
Henry Glick and Jill Kelly, *GIS Consultants at CSSSI*
Scott Rumage, *IT Supervisor at Yale FES*
Dana Tomlin, *GIS Professor at Yale FES*
Xuhui Lee, *Professor at Yale FES and Director of the Center for Earth Observation*
Larry Bonneau, *Manager and Research Associate at Center for Earth Observation*
Karen Seto, *Geography and Urbanization Professor at Yale FES*
Timothy Gregoire, *Professor of Forest Management at Yale FES*
Walter Jetz, *Associate Professor of Ecology at Yale FES*
Bill Rankin, *Assistant Professor of Geography and Cartography in Yale History Department*
Laura Barraclough, *Assistant Professor of American Studies and Ethnicity, Race, and Migration*

Courses:
Modeling Geographic Objects (Fall) – Dana Tomlin
Modeling Geographic Space (Spring) – Dana Tomlin

Geospatial Software Design (Fall) – Dana Tomlin
Applied Spatial Statistics (Spring) – Tim Gregoire, Jonathan Reuning-Scherer
Observing Earth from Space (Spring) – Xuhui Lee and Larry Bonneau
Cartography, Territory, and Identity (Fall) – Bill Rankin

VI. WEDNESDAY MORNING

Urban Infrastructure Analysis – Gabe Benoit

In cities, the built environment can radically alter natural ecosystem functioning. A good example of this is how the hydrologic cycle is redirected, and changed in other ways by the street drain system. In most cases, this urban infrastructure is well documented, which is fortunate because most of it is out of sight, buried under streets.

In this exercise we will examine planning documents showing the storm and sanitary sewers and their associated catch basins. Walking the area around FES, we will compare maps to features visible on the street (catch basins and manholes) to gain an understanding of exactly what the maps tell us. Then, back indoors we will use map sets that cover the portion of the city that drains the Yale Experimental Watershed, across from Sage Hall. Based on this information we will evaluate where stormflow on Prospect Street and Hillside Place -- two streets within the YEW – currently drain. This can also serve as a starting point for a discussion of the water cycle of the YEW and how it might be restore based on knowledge of the sewershed and its characteristics.

Procedure

Once back in Bowers you will be divided into several groups, and you will look at the storm drain network for either Hillside Place or Prospect Street. Note that water currently entering storm drains on these streets formerly drained to the YEW. Maps for the area around the YEW will be laid out, and will have surfaces suitable for drawing on with dry erase markers. There are no combined sewer overflows in this area, only separated sanitary sewers and storm drains.

- Identify the storm drains that serve the streets in question. Remember that storm drains are indicated by lines running between small open circles. Lines running between filled circles are sanitary sewers in this part of the city and should be ignored.
- Trace over the storm drains and in color for easy identification, and show the path water follows as it leaves the site.
- Once you have completely mapped the drain system for your street, highlight it with a bright color that is easy to recognize.

- Consider the street segment and the impervious areas (sidewalks, driveways, rooftops) that drain to it. Think about how this may be altering the water cycle of the YEW. Can you guesstimate a proportion of rain that is being diverted away from the natural drainage network

Litter

Storm drains divert water but also pick up and carry contaminants. Most visible of these is ordinary litter. On our way to lunch and the afternoon's water quality exercise, we will proceed to the site of the outfall for a storm sewershed close to the one you have delineated. The city has installed a special catch basin at this location to capture and retain litter carried by stormwater. As you bike over, make note of factors that might contribute litter. Also, think about ways that litter is currently controlled and ways that it could be better managed. Reducing litter in Beaver Ponds is one priority of the friends group we will meet and work with on Thursday.

Trash Inventory at Beaver Ponds Park – Gabe Benoit

Introduction:

Litter is probably the most visible form of pollution and maybe the easiest to understand. At the same time, litter may be associated with just as serious, but less visible forms of pollution and may have significant direct negative impacts on society. According to the "broken windows" theory, littering can be a factor in promoting more serious criminal activity (Wilson and Kelling 1982). Litter can harm urban wildlife via ingestion, entanglement, and the like, and trash can be indicative of a negative neighborhood environment, often associated with social problems like drug use, mugging, and vandalism (Latkin and Curry 2003). These problems may be especially challenging for the elderly, who can lose access to community, and the freedom to accomplish everyday tasks such as shopping, travel, and socialization, when perceptions of neighborhood environmental quality are harmed by litter and related factors.(Balfour and Kaplan 2002).

In the urban environment, litter may be found where it was discarded, but more frequently it is carried by stormwater, sometimes to distant locations. Beaver Ponds receives street runoff via nine separate outfalls covering a large area of the city. Much of the litter carried to the park ends up in the riparian zone of the ponds. In today's activity, you will collect, characterize, and quantify the litter in a small plot adjacent to the pond. This will have two benefits: (1) you will help clean the park, a key desire of the Friends of Beaver Ponds Park, and (2) the data may be useful in establishing a management strategy to minimize future litter.

Figure 1: Pilot litter inventory conducted by FoBBP

Procedure:

Select one of the 2 m × 2 m plots that have been marked off by the TAs, and spread a tarp nearby. Wear gloves and change them as needed during the exercise. Collect all litter from the plot and from any area that can be reached directly offshore. Place them in piles matching the categories in Data Table 1. When all litter has been removed from your plot, count the items in each category and weigh them. Do not bother to count unidentifiable plastic fragments, just weigh them in aggregate. Whenever possible, find "sell by" or "freshness" dates and record them as well. This provides approximate age information. Some items may fit into more than one category, e.g., is a cigar wrapper smoking related or drug paraphernalia? Use your judgement, part of qualitative analysis.

Data Table 1:

Waste Category	Quantity	Weight	Dates	Comments
Styrofoam				
Snack wrappers (check freshness dates!)				
Plastic bottles (deposit refundable?)				
Bottle caps				
Cans (deposit refundable?)				
Juice pouches				
Smoking related (lighters, butts,)				
Alcohol related				
Toys				
Health/Personal care				
Drug related (dime bags, blunt wrappers, hollow pens)				
Other assorted plastics **(do not count fragments)**	XXXX			
Other				

Classification can help environmental scientists, managers, and educators understand where the dominant litter type might be generated and why, as well as how it could be traveling to the

collection site. The states of Texas and California did extensive research before starting their "Don't Mess with Texas" and "Don't Trash California" anti-litter campaigns. Quantitative regression models have been created to predict litter amounts along highways (Syrek et al. 2003). This is a science!

***IMPORTANT**: If you find any potentially hazardous sharps (hypodermics or glass) **REPORT THEM TO THE TAs**, who will be responsible for removal.

Discussion Questions:

- What general conclusions can we draw from this activity about waste types and flows into Beaver Pond Park?
- Can you make inferences about the sources of the litter? For example, do brands suggest specific fast-food establishments? Are some items likely to come from domestic trash rather than littering? (Litter can be intentional or unintentional, e.g., blown from trucks and open trash containers).
- What advice might we offer to environmental managers based on these findings? Should control be preventive (public awareness, trash receptacles), reactive (clean-up), or corrective (enforcement)?

Balfour, J. L., and G. A. Kaplan. 2002. Neighborhood environment and loss of physical function in older adults: Evidence from the Alameda County Study. American Journal of Epidemiology **155:** 507-515.

Latkin, C. A., and A. D. Curry. 2003. Stressful neighborhoods and depression: A prospective study of the impact of neighborhood disorder. Journal of Health and Social Behavior **44:** 34-44.

Syrek, D. B., M. Kayhanian, and S. Meyer. 2003. A regression model to predict litter in urban freeway outfalls after rainstorms, p. 18 pp., StormCon. CSUS Office of Water Programs.

Wilson, J. Q., and G. L. Kelling. 1982. Broken WIndows, p. 29-38. Atlantic Monthly.

VII. WEDNESDAY AFTERNOON

New Haven Public Place Observation Analysis Exercise

New Haven has a variety of public spaces, within the Yale campus and well beyond. This exercise will develop your skills in public space observation, assessment, and analysis. It follows the framework developed by sociologist William Whyte.

For examples of how William Whyte performed his analysis, we will watch a few short clips from his seminal documentary, *The Social Life of Small Urban Places*. For additional information, feel free to check out Whyte's companion book of the same name, and visit the website for the *Project for Public Spaces*, a nonprofit organization in New York City, begun by members of Whyte's research team.

In addition to Whyte's methods, students should familiarize themselves with the subject matter of Elijah Anderson's *The Cosmopolitan Canopy*, which explores urban islands of civility amid segregated city- and suburban-scapes. As one of the most demographically representative cities in the nation, New Haven offers students a unique opportunity to reflect on civic space. Anderson is a Yale professor of sociology and one of the nation's foremost urban ethnographers.

For this exercise, students will be split into smaller groups to compare two public spaces. Part of the reason we break up into different teams is to identify differences in qualitative data collection. The spaces we will visit are:

- Criscuolo Park
- Dover Beach Park
- Edgewood Park
- De Gale Field
- Jocelyn Square Park
- New Haven Green
- Scantlebury Park
- Trowbridge Square Park
- Wooster Square

At each park site, groups should pay close attention to five factors:

- **Survey Information**—How are people using/interacting with the park?
- **Park Patronage**—Who is in the park? Does it reflect the surrounding population?
- **Context**—What is in the park's surrounding areas? Along the street? The neighborhood?
- **Mapping**—What is the park's layout? Where are people entering/exiting the park?
- **Introspection**—How do you feel in the park? Does it feel like a cosmopolitan space?

The following pages include observation sheets and maps for each park that we will be visiting, as well as additional park information and a context map of the study sites within the city. Thumb through all of the observation sheets to see how your public space compares to the others.

The observation sheets are meant to help gather information and frame your analysis. Use them as best you can to collect data, and don't worry about making them look perfect or neat. You will likely need additional paper. Feel free to gather additional data through pictures, as this will greatly inform your description of park design elements and surrounding context. Remember to be respectful when taking pictures of the space.

On each observation sheet you will also see a brief summary of the surrounding neighborhood's census data. This data is meant to help you analyze park patronage as it relates to the surrounding community, and it should provoke analysis of what park features are actually driving usage.

Following the observation exercise, each of the park teams will compare their notes for the two parks with their group. Then each group will join another park pair group to see how their spaces and their findings differed.

Observation Sites

in context

Observation Site

Criscuolo Park

Criscuolo Park is a waterfront park that lies at the intersection of the Mill and Quinnipiac Rivers. The park sees a diverse array of uses. Youth and adult soccer leagues compete on its athletic fields, adult softball leagues use its diamond, and fishermen congregate on its waterfront. Students from nearby schools enjoy its fields and playscape for recess. A beautiful memorial for the Connecticut Twenty-Ninth Colored Regiment C. V. Infantry that once trained on the site was installed in 2008 with fundraising efforts from a Descendants group.

After the Civil War, site barracks were either taken down, converted to tenement housing, or ornamented for Yale Navy Boat Houses. The New Haven Park Commission purchased the property in 1890 and began converting it for recreational purposes. Additional temporary housing was installed on the site during WWII, which was removed after the war. The park has since had several iterations of redevelopment, from Fair Haven Project Area Committee efforts in the 1970s to contemporary bids by the New Haven Parks department and local area schools.

OBSERVATION TIMESTAMP

Day of Week:

Start Time:

Stop Time:

Weather:

Team Members:

NEIGHBORHOOD PROFILE (ACS CENSUS 2010)

Age of Residents: < 35: 59%, 35–64: 33%, 65+: 7%

Home Ownership: 75% Rent, 25% Own

Highest Educational Attainment: < High School: 31%, High School or Higher: 69%, Bachelor's or Higher: 10%

Race: White: 13%, Black / African American: 21%, Asian: 0%, Other: 2% *(Hispanic or Latino origin: 63%)*

USER BEHAVIOR OBSERVATIONS **(survey)**

Activities and Behavior (Are people sitting, reading, taking photos, texting, walking, etc.?)

Human Interaction (How are inhabitants of the space interacting? Are they interacting?)

Destinations and Origins (From where do people enter the site? Where are they going?)

Demographics (Do the demographics of the park reflect the neighborhood profile?)

SITE OBSERVATIONS **(context and mapping)**

Context (Is the surrounding area residential, commercial, highway, roads, water? Are there neighbors watching the park? Are people gathering on porches or adjacent private property?)

Landscape Elements (Are there benches? Play features? Bus shelters? Tables? Lights? Is the park accessible? Where do people gather? Where do people stand? Are there fences, and if so where? How do these define use and access? Do features appear designed to cater to specific demographics and age ranges?)

Condition of the Park (Is the park clean? Are there trashcans, and if so, full or empty? Does vegetation seem to be healthy? Is graffiti present?)

SELF REFLECTION **(introspection)**

Do you feel comfortable visiting this park? Do you think others feel equally comfortable using the park? Does the park feel like a "cosmopolitan canopy", where anyone could expect civility? Is it a pluralistic space that creates opportunities for diverse people to come together?

Observation Site

Criscuolo Park

MAPPING EXERCISE
Mark on the map above

ENTRANCES AND EXITS (FORMAL AND INFORMAL) WITH ARROWS

Note areas with/without fences, etc.

COMMON GROUP OR SINGLETON GATHERING LOCATIONS USING X (FEMALE) AND O (MALE)

While it may seem odd to connect gender to patron observations, the perceived safety of public spaces is often reflected in how female-identifying individuals occupy space.

COMMON PATHS OF MOVEMENT WITH LINES

If movement is limited, note if it may be impacted by surroundings? Time of day? Connect to observations on previous page.

MARK DOWN THE NATURE OF THE SURROUNDING CONTEXT

Residential, commercial, busy highway, quite street, good condition, etc.

Observation Site

Dover Beach Park

Dover Beach Park is a recently renovated park that lies along the Quinnipiac River in the Fair Haven neighborhood. Once a popular spot for swimming and canoeing in the 1910s and 1920s, the riverside lost its appeal with the overpass construction and increasing industrialization. In fall 2010, Dover Beach became the focus of city and volunteer efforts, transforming the area from desolate coastline to a vibrant park space.

Dover Beach is part of an "urban oasis" program, one of seven sites throughout the city where green restorations are taking place thanks to a partnership between the U.S. Fish and Wildlife Service, Yale's Urban Resources Initiative, Audubon Connecticut and the city. The community organizers, Friends of Dover Beach Park, is a URI Park Friends group founded in 2008 from members of the long serving Riverview Greenspace group. The friends group seeks to make the area around the site more walkable and curb

OBSERVATION TIMESTAMP

Day of Week:

Start Time:

Stop Time:

Weather:

Team Members:

NEIGHBORHOOD PROFILE (ACS CENSUS 2010)

Age of Residents: < 35: 59%, 35–64: 33%, 65+: 7%.

Home Ownership: 75% Rent, 25% Own

Highest Educational Attainment: < High School: 31%, High School or Higher: 69%, Bachelor's or Higher: 10%

Race: White: 13%, Black / African American: 21%, Asian: 0%, Other: 2% (Hispanic or Latino origin: 63%)

USER BEHAVIOR OBSERVATIONS **(survey)**

Activities and Behavior (Are people sitting, reading, taking photos, texting, walking, etc.?)

Human Interaction (How are inhabitants of the space interacting? Are they interacting?)

Destinations and Origins (From where do people enter the site? Where are they going?)

Demographics (Do the demographics of the park reflect the neighborhood profile?)

SITE OBSERVATIONS **(context and mapping)**

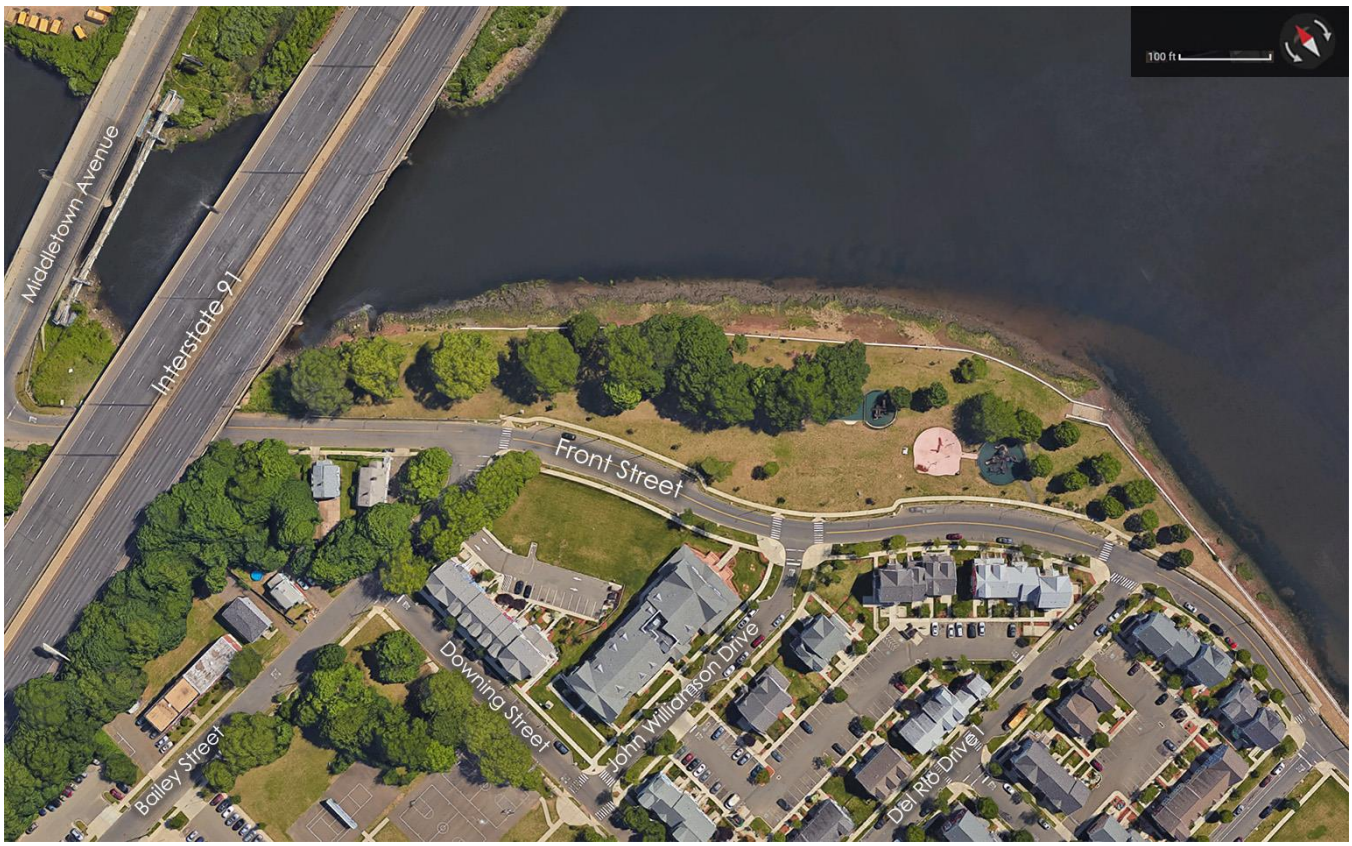
Context (Is the surrounding area residential, commercial, highway, roads, water? Are there neighbors watching the park? Are people gathering on porches or adjacent private property?)

Landscape Elements (Are there benches? Play features? Bus shelters? Tables? Lights? Is the park accessible? Where do people gather? Where do people stand? Are there fences, and if so where? How do these define use and access? Do features appear designed to cater to specific demographics and age ranges?)

Condition of the Park (Is the park clean? Are there trashcans, and if so, full or empty? Does vegetation seem to be healthy? Is graffiti present?)

SELF REFLECTION **(introspection)**

Do you feel comfortable visiting this park? Do you think others feel equally comfortable using the park? Does the park feel like a "cosmopolitan canopy", where anyone could expect civility? Is it a pluralistic space that creates opportunities for diverse people to come together?



Observation Site

Dover Beach Park

MAPPING EXERCISE
Mark on the map above

ENTRANCES AND EXITS (FORMAL AND INFORMAL) WITH ARROWS

Note areas with/without fences, etc.

COMMON GROUP OR SINGLETON GATHERING LOCATIONS USING X (FEMALE) AND O (MALE)

While it may seem odd to connect gender to patron observations, the perceived safety of public spaces is often reflected in how female-identifying individuals occupy space.

COMMON PATHS OF MOVEMENT WITH LINES

If movement is limited, note if it may be impacted by surroundings? Time of day? Connect to observations on previous page.

MARK DOWN THE NATURE OF THE SURROUNDING CONTEXT

Residential, commercial, busy highway, quite street, good condition, etc.

Observation Site

Edgewood Park

Edgewood Park is an over 120-acre park and recreation area located in New Haven's Edgewood and Westville neighborhoods. It contains water features, memorials, trails, tennis courts, and West River and its surrounding marshes. The park's current layout was designed in 1910 by Frederick Law Olmsted, Jr.

The Edgewood Neighborhood is the first area in the city that was planned under the tenants of the City Beautiful Movement. It is primarily residential, with many homes built between 1888 and 1900 in the Queen Anne or Colonial Revival styles. The neighborhood was listed on the National Register of Historic Places in 1986.

The park itself has multiple natural and built features that make it unique. West River is featured prominently to the east of the site, with topography that rises rapidly to the west. It features memorials for the Spanish–American War and the Holocaust, as well as a publicly accessible recreational area.

Edgewood Park has an active Friends Group that works URI. The Friends of Edgewood Park recently started a program that uses goats to remove invasive plants.

OBSERVATION TIMESTAMP

Day of Week:

Start Time:

Stop Time:

Weather:

Team Members:

NEIGHBORHOOD PROFILE (ACS CENSUS 2010)

Lies in two census tracts from west to east

Age of Residents: < 35: west 44% east 51%, 35-65: west 43% east 38%, 65+: west 2% east 1%

Home Ownership: Rent west 53% east 78%, Own west 47% east 22%

Highest Educational Attainment: < High School: west 6% east 12%, High School or Higher: west 94% east 88%, Bachelor's or Higher: west 61% east 22%

Race: White: west 66% east 20%, Black / African American: west 19% east 59%, Other: west 0% east 0% *(Hispanic or Latino origin: west 11% east 13%)*

USER BEHAVIOR OBSERVATIONS **(survey)**

Activities and Behavior (Are people sitting, reading, taking photos, texting, walking, etc.?)

Human Interaction (How are inhabitants of the space interacting? Are they interacting?)

Destinations and Origins (From where do people enter the site? Where are they going?)

Demographics (Do the demographics of the park reflect the neighborhood profile?)

SITE OBSERVATIONS **(context and mapping)**

Context (Is the surrounding area residential, commercial, highway, roads, water? Are there neighbors watching the park? Are people gathering on porches or adjacent private property?)

Landscape Elements (Are there benches? Play features? Bus shelters? Tables? Lights? Is the park accessible? Where do people gather? Where do people stand? Are there fences, and if so where? How do these define use and access? Do features appear designed to cater to specific demographics and age ranges?)

Condition of the Park (Is the park clean? Are there trashcans, and if so, full or empty? Does vegetation seem to be healthy? Is graffiti present?)

SELF REFLECTION **(introspection)**

Do you feel comfortable visiting this park? Do you think others feel equally comfortable using the park? Does the park feel like a "cosmopolitan canopy", where anyone could expect civility? Is it a pluralistic space that creates opportunities for diverse people to come together?

Observation Site

Edgewood Park

MAPPING EXERCISE
Mark on the map above

ENTRANCES AND EXITS (FORMAL AND INFORMAL) WITH ARROWS

Note areas with/without fences, etc.

COMMON GROUP OR SINGLETON GATHERING LOCATIONS USING X (FEMALE) AND O (MALE)

While it may seem odd to connect gender to patron observations, the perceived safety of public spaces is often reflected in how female-identifying individuals occupy space.

COMMON PATHS OF MOVEMENT WITH LINES

If movement is limited, note if it may be impacted by surroundings? Time of day? Connect to observations on previous page.

MARK DOWN THE NATURE OF THE SURROUNDING CONTEXT

Residential, commercial, busy highway, quite street, good condition, etc.

Observation Site

De Gale Field

De Gale Field—also known as Goffe Street Park—lies close to Beaver Ponds Park, separated by Hill House Highschool. The park has a Friends Group that stewards the ground and hosts a variety of events. Founded in 2017, Friends of Goffe Street Park is the newest among 15 park advocacy and stewardship groups across the city.

The park has been the center of many activities over the years, including Little League games, the Black Expo, the annual New Haven Caribbean Heritage Festival, women's softball league tournaments, CT Basketball Shoot Outs, Gospel and Unity in the Community festivals. The park is also well amenitied thanks to the work of multiple advocacy groups like New Haven Rising and local little league and church groups.

OBSERVATION TIMESTAMP

Day of Week:

Start Time:

Stop Time:

Weather:

Team Members:

NEIGHBORHOOD PROFILE (ACS CENSUS 2010)

Age of Residents: < 35: 60%, 35–64: 28%, 65+: 12%.

Home Ownership: 84% Rent, 16% Own

Highest Educational Attainment: < High School: 18%, High School or Higher: 82%, Bachelor's or Higher: 18%

Race: White: 16% Black / African American: 66%, Other: 0% *(Hispanic or Latino origin: 13%)*

USER BEHAVIOR OBSERVATIONS **(survey)**

Activities and Behavior (Are people sitting, reading, taking photos, texting, walking, etc.?)

Human Interaction (How are inhabitants of the space interacting? Are they interacting?)

Destinations and Origins (From where do people enter the site? Where are they going?)

Demographics (Do the demographics of the park reflect the neighborhood profile?)

SITE OBSERVATIONS **(context and mapping)**

Context (Is the surrounding area residential, commercial, highway, roads, water? Are there neighbors watching the park? Are people gathering on porches or adjacent private property?)

Landscape Elements (Are there benches? Play features? Bus shelters? Tables? Lights? Is the park accessible? Where do people gather? Where do people stand? Are there fences, and if so where? How do these define use and access? Do features appear designed to cater to specific demographics and age ranges?)

Condition of the Park (Is the park clean? Are there trashcans, and if so, full or empty? Does vegetation seem to be healthy? Is graffiti present?)

SELF REFLECTION **(introspection)**

Do you feel comfortable visiting this park? Do you think others feel equally comfortable using the park? Does the park feel like a "cosmopolitan canopy", where anyone could expect civility? Is it a pluralistic space that creates opportunities for diverse people to come together?

Observation Site

De Gale Field

MAPPING EXERCISE
Mark on the map above

ENTRANCES AND EXITS (FORMAL AND INFORMAL) WITH ARROWS

Note areas with/without fences, etc.

COMMON GROUP OR SINGLETON GATHERING LOCATIONS USING X (FEMALE) AND O (MALE)

While it may seem odd to connect gender to patron observations, the perceived safety of public spaces is often reflected in how female-identifying individuals occupy space.

COMMON PATHS OF MOVEMENT WITH LINES

If movement is limited, note if it may be impacted by surroundings? Time of day? Connect to observations on previous page.

MARK DOWN THE NATURE OF THE SURROUNDING CONTEXT

Residential, commercial, busy highway, quite street, good condition, etc.

Observation Site

Jocelyn Square Park

Jocelyn Square Park is a 2.61-acre public park that lies just east of Interstate 91 at the northwest corner of the Fair Haven Neighborhood.

The park was donated to the city in 1836 and named after 19th-century abolitionist and neighborhood planner Simeon Jocelyn. Once more closely connected to the Wooster neighborhood, the construction of Interstate 91 in the 1950s isolated this area from its western context.

The park contains both a basketball court, splash pad, and several jungle gyms.

OBSERVATION TIMESTAMP

Day of Week:

Start Time:

Stop Time:

Weather:

Team Members:

NEIGHBORHOOD PROFILE (ACS CENSUS 2010)

Age of Residents: < 35: 59%, 35–64: 33%, 65+: 7%

Home Ownership: 75% Rent, 25% Own

Highest Educational Attainment: < High School: 31%, High School or Higher: 69%, Bachelor's or Higher: 10%

Race: White: 13%, Black / African American: 21%, Asian: 0%, Other: 2% *(Hispanic or Latino origin: 63%)*

USER BEHAVIOR OBSERVATIONS **(survey)**

Activities and Behavior (Are people sitting, reading, taking photos, texting, walking, etc.?)

Human Interaction (How are inhabitants of the space interacting? Are they interacting?)

Destinations and Origins (From where do people enter the site? Where are they going?)

Demographics (Do the demographics of the park reflect the neighborhood profile?)

SITE OBSERVATIONS **(context and mapping)**

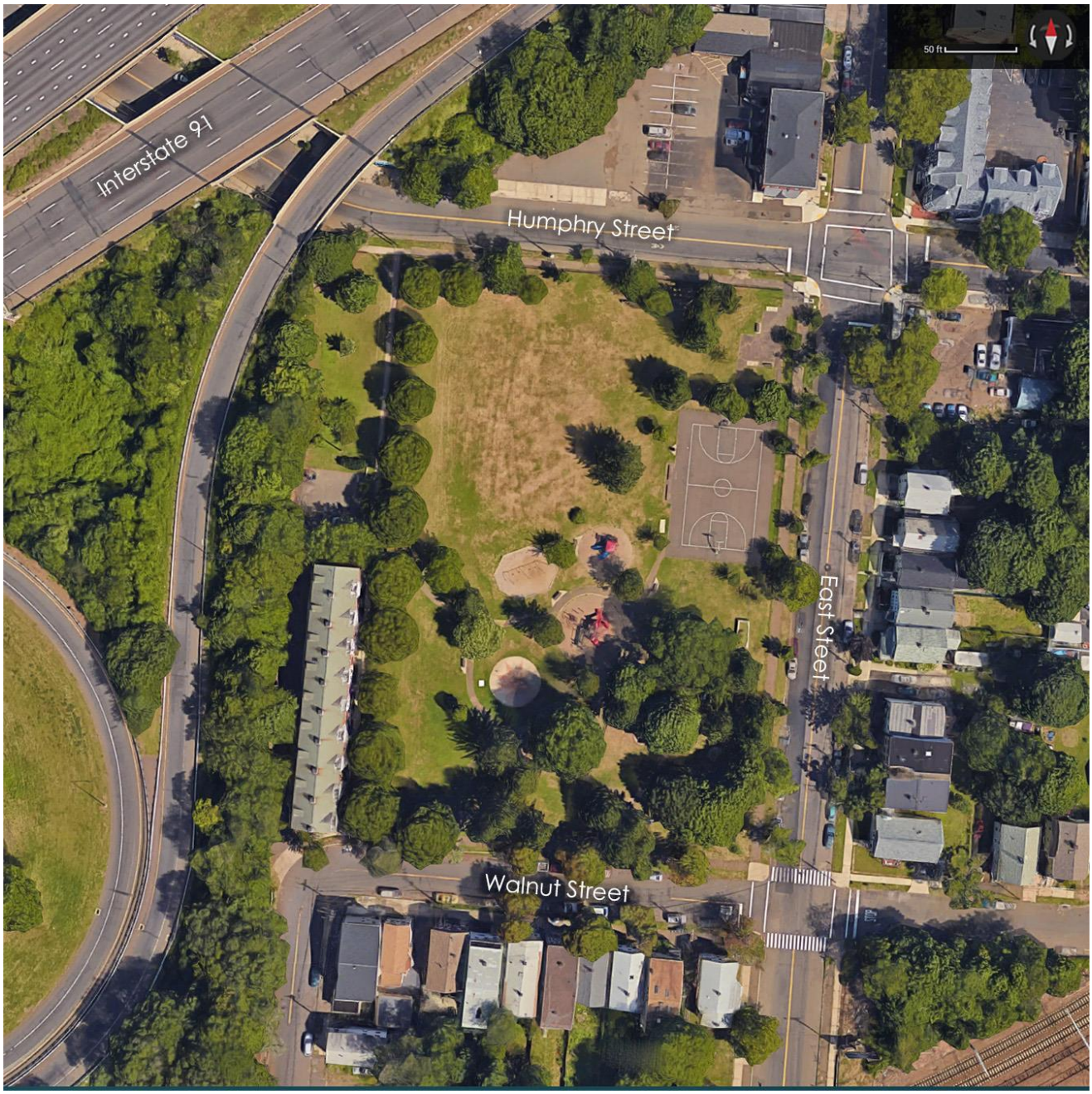
Context (Is the surrounding area residential, commercial, highway, roads, water? Are there neighbors watching the park? Are people gathering on porches or adjacent private property?)

Landscape Elements (Are there benches? Play features? Bus shelters? Tables? Lights? Is the park accessible? Where do people gather? Where do people stand? Are there fences, and if so where? How do these define use and access? Do features appear designed to cater to specific demographics and age ranges?)

Condition of the Park (Is the park clean? Are there trashcans, and if so, full or empty? Does vegetation seem to be healthy? Is graffiti present?)

SELF REFLECTION **(introspection)**

Do you feel comfortable visiting this park? Do you think others feel equally comfortable using the park? Does the park feel like a "cosmopolitan canopy", where anyone could expect civility? Is it a pluralistic space that creates opportunities for diverse people to come together?



Observation Site

Jocelyn Square Park

MAPPING EXERCISE
Mark on the map above

ENTRANCES AND EXITS (FORMAL AND INFORMAL) WITH ARROWS

Note areas with/without fences, etc.

COMMON GROUP OR SINGLETON GATHERING LOCATIONS USING X (FEMALE) AND O (MALE)

While it may seem odd to connect gender to patron observations, the perceived safety of public spaces is often reflected in how female-identifying individuals occupy space.

COMMON PATHS OF MOVEMENT WITH LINES

If movement is limited, note if it may be impacted by surroundings? Time of day? Connect to observations on previous page.

MARK DOWN THE NATURE OF THE SURROUNDING CONTEXT

Residential, commercial, busy highway, quite street, good condition, etc.

Observation Site

New Haven Green

The Green is a 16-acre park and recreation area located in New Haven's downtown district. Completed in 1638, it comprises the central square of the nine-square settlement plan of the original puritan colonists.

Since its founding, the Committee of the Proprietors of Common and Undivided Lands at New Haven has maintained ownership and stewardship of the Green. The Proprietors are a self-electing group of five private individuals drawn from the ranks of prominent city residents.

The Green is host to numerous public events, such as the Festival of Arts and Ideas and New Haven Jazz Festival, summer jazz and classical music concerts that can draw thousands of people, as well as typical daily park activities.

OBSERVATION TIMESTAMP

Day of Week:

Start Time:

Stop Time:

Weather:

Team Members:

NEIGHBORHOOD PROFILE (ACS CENSUS 2010)

Age of Residents: < 35: 82%, 35–64: 15%, 65+: 4%.

Home Ownership: 92% Rent, 8% Own

Highest Educational Attainment: < High School: 6%, High School or Higher: 94%, Bachelor's or Higher: 74%

Race: White: 56%, Black / African American: 11%, Asian: 19%, Other: 5% *(Hispanic or Latino origin: 10%)*

USER BEHAVIOR OBSERVATIONS **(survey)**

Activities and Behavior (Are people sitting, reading, taking photos, texting, walking, etc.?)

Human Interaction (How are inhabitants of the space interacting? Are they interacting?)

Destinations and Origins (From where do people enter the site? Where are they going?)

Demographics (Do the demographics of the park reflect the neighborhood profile?)

SITE OBSERVATIONS **(context and mapping)**

Context (Is the surrounding area residential, commercial, highway, roads, water? Are there neighbors watching the park? Are people gathering on porches or adjacent private property?)

Landscape Elements (Are there benches? Play features? Bus shelters? Tables? Lights? Is the park accessible? Where do people gather? Where do people stand? Are there fences, and if so where? How do these define use and access? Do features appear designed to cater to specific demographics and age ranges?)

Condition of the Park (Is the park clean? Are there trashcans, and if so, full or empty? Does vegetation seem to be healthy? Is graffiti present?)

SELF REFLECTION **(introspection)**

Do you feel comfortable visiting this park? Do you think others feel equally comfortable using the park? Does the park feel like a "cosmopolitan canopy", where anyone could expect civility? Is it a pluralistic space that creates opportunities for diverse people to come together?

Observation Site

New Haven Green

MAPPING EXERCISE
Mark on the map above

ENTRANCES AND EXITS (FORMAL AND INFORMAL) WITH ARROWS

Note areas with/without fences, etc.

COMMON GROUP OR SINGLETON GATHERING LOCATIONS USING X (FEMALE) AND O (MALE)

While it may seem odd to connect gender to patron observations, the perceived safety of public spaces is often reflected in how female-identifying individuals occupy space.

COMMON PATHS OF MOVEMENT WITH LINES

If movement is limited, note if it may be impacted by surroundings? Time of day? Connect to observations on previous page.

MARK DOWN THE NATURE OF THE SURROUNDING CONTEXT

Residential, commercial, busy highway, quite street, good condition, etc.

Observation Site

Scantlebury Park

The Ella B. Scantlebury Park was named after New Haven's first African-American and first woman City Treasurer. It is a community park on the border of the Dixwell neighborhood, Yale University's campus, the Farmington Canal Heritage Greenway, and the Monterey Place Affordable Housing Development.

An historical public amenity, the Greenway traverses the city and covers approximately 84 miles from New Haven to Northampton, MA. Monterey Place also has an interesting history. Built in 1998 with a $45 million Hope VI grant, it is a mixed-income and ownership development that replaced the notorious Elm Haven high-rises, New Haven's first public housing project.

The park was expanded and renovated in 2008, adding additional land and improvements to an existing basketball court on the site. Stewarded by the Dixwell Management Team Greenspace Group, the Urban Resources initiative has been working with the community group as a Park Friend since 2003.

OBSERVATION TIMESTAMP

Day of Week:

Start Time:

Stop Time:

Weather:

Team Members:

NEIGHBORHOOD PROFILE (ACS CENSUS 2010)

Age of Residents: < 35: 55%, 35–64: 35%, 65+: 10%

Home Ownership: 78% Rent, 22% Own

Highest Educational Attainment: < High School: 29%, High School or Higher: 71%, Bachelor's or Higher: 17%

Race: White: 13%, Black / African American: 68%, Asian: 2%, Other: 3% *(Hispanic or Latino origin: 15%)*

USER BEHAVIOR OBSERVATIONS **(survey)**

Activities and Behavior (Are people sitting, reading, taking photos, texting, walking, etc.?)

Human Interaction (How are inhabitants of the space interacting? Are they interacting?)

Destinations and Origins (From where do people enter the site? Where are they going?)

Demographics (Do the demographics of the park reflect the neighborhood profile?)

SITE OBSERVATIONS **(context and mapping)**

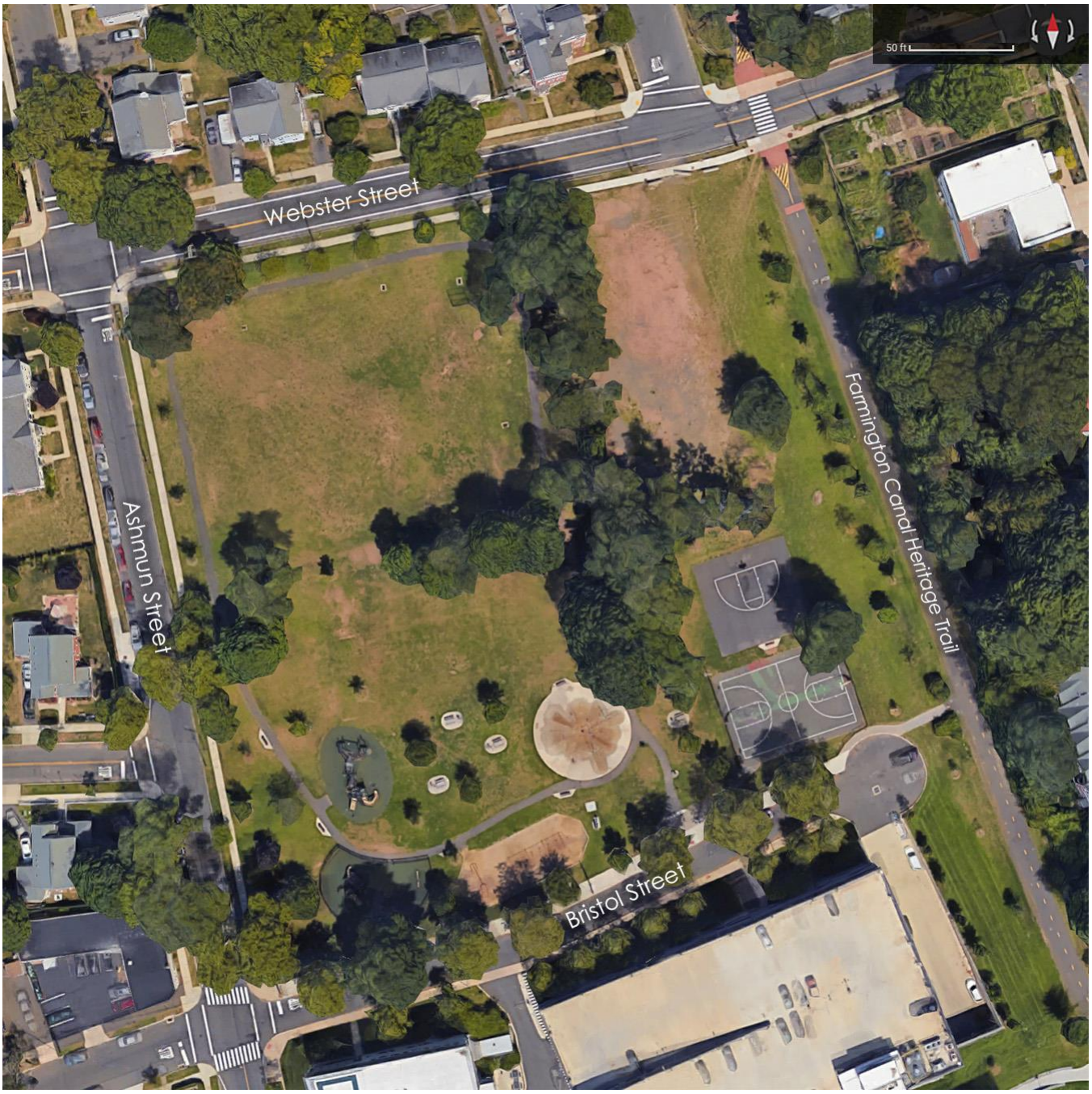
Context (Is the surrounding area residential, commercial, highway, roads, water? Are there neighbors watching the park? Are people gathering on porches or adjacent private property?)

Landscape Elements (Are there benches? Play features? Bus shelters? Tables? Lights? Is the park accessible? Where do people gather? Where do people stand? Are there fences, and if so where? How do these define use and access? Do features appear designed to cater to specific demographics and age ranges?)

Condition of the Park (Is the park clean? Are there trashcans, and if so, full or empty? Does vegetation seem to be healthy? Is graffiti present?)

SELF REFLECTION **(introspection)**

Do you feel comfortable visiting this park? Do you think others feel equally comfortable using the park? Does the park feel like a "cosmopolitan canopy", where anyone could expect civility? Is it a pluralistic space that creates opportunities for diverse people to come together?



Observation Site

Scantlebury Park

MAPPING EXERCISE
Mark on the map above

ENTRANCES AND EXITS (FORMAL AND INFORMAL) WITH ARROWS

Note areas with/without fences, etc.

COMMON GROUP OR SINGLETON GATHERING LOCATIONS USING X (FEMALE) AND O (MALE)

While it may seem odd to connect gender to patron observations, the perceived safety of public spaces is often reflected in how female-identifying individuals occupy space.

COMMON PATHS OF MOVEMENT WITH LINES

If movement is limited, note if it may be impacted by surroundings? Time of day? Connect to observations on previous page.

MARK DOWN THE NATURE OF THE SURROUNDING CONTEXT

Residential, commercial, busy highway, quite street, good condition, etc.

Observation Site

Trowbridge Square Park

Trowbridge Square Park is a small, 0.83-acre park located near the center of the Hill Neighborhood. It is an important feature of the Trowbridge Square Historic District.

Formerly Spireworth Square, the park was laid out in the mid-1800s as a small green with swings, a basketball court, utility building, and floodable paved surfaces for skating in winter.

The district was listed on the National Register of Historic Places in 1985. At that time, it included 208 contributing buildings and one other contributing site. Its NRHP nomination asserted that the district was "historically significant as New Haven's most intact and cohesive surviving example of a working-class residential neighborhood which was planned and developed as such during the nineteenth century."

OBSERVATION TIMESTAMP

Day of Week:

Start Time:

Stop Time:

Weather:

Team Members:

NEIGHBORHOOD PROFILE (ACS CENSUS 2010)

Age of Residents: < 35: 60%, 35–64: 31%, 65+: 9%.

Home Ownership: 77% Rent, 23% Own

Highest Educational Attainment: < High School: 33%, High School or Higher: 67%, Bachelor's or Higher: 8%

Race: White: 10%, Black / African American: 37%, Asian: 1%, Other: 2% *(Hispanic or Latino origin: 51%)*

USER BEHAVIOR OBSERVATIONS **(survey)**

Activities and Behavior (Are people sitting, reading, taking photos, texting, walking, etc.?)

Human Interaction (How are inhabitants of the space interacting? Are they interacting?)

Destinations and Origins (From where do people enter the site? Where are they going?)

Demographics (Do the demographics of the park reflect the neighborhood profile?)

SITE OBSERVATIONS **(context and mapping)**

Context (Is the surrounding area residential, commercial, highway, roads, water? Are there neighbors watching the park? Are people gathering on porches or adjacent private property?)

Landscape Elements (Are there benches? Play features? Bus shelters? Tables? Lights? Is the park accessible? Where do people gather? Where do people stand? Are there fences, and if so where? How do these define use and access? Do features appear designed to cater to specific demographics and age ranges?)

Condition of the Park (Is the park clean? Are there trashcans, and if so, full or empty? Does vegetation seem to be healthy? Is graffiti present?)

SELF REFLECTION **(introspection)**

Do you feel comfortable visiting this park? Do you think others feel equally comfortable using the park? Does the park feel like a "cosmopolitan canopy", where anyone could expect civility? Is it a pluralistic space that creates opportunities for diverse people to come together?

Observation Site

Trowbridge Square Park

MAPPING EXERCISE
Mark on the map above

ENTRANCES AND EXITS (FORMAL AND INFORMAL) WITH ARROWS

Note areas with/without fences, etc.

COMMON GROUP OR SINGLETON GATHERING LOCATIONS USING X (FEMALE) AND O (MALE)

While it may seem odd to connect gender to patron observations, the perceived safety of public spaces is often reflected in how female-identifying individuals occupy space.

COMMON PATHS OF MOVEMENT WITH LINES

If movement is limited, note if it may be impacted by surroundings? Time of day? Connect to observations on previous page.

MARK DOWN THE NATURE OF THE SURROUNDING CONTEXT

Residential, commercial, busy highway, quite street, good condition, etc.

Observation Site

Wooster Square

Wooster Square lies in the center of a neighborhood of the same name. The park fills with cherry blossoms in the spring and festivals and a farmer's market in the summer. The neighborhood is known as a bastion of Italian American culture and cuisine, and is home to some of New Haven's best-known apizza. The square was established in 1825 to provide a new "Green" for the expanding eastern part of the town. Successful industrialists built their houses around it, and named it after New Haven's Revolutionary hero, General David Wooster.

Wooster Square has survived several demolition attempts, from redevelopment plans in the 1930s as "commercial activity damaged the neighborhood's reputation", to the mid-1950s when plans to build Interstate 91 through the Square were diverted southward and eastward. Much of the neighborhood was designated on the National Register of Historic Places in 1970 as New Haven's first historic district.

OBSERVATION TIMESTAMP

Day of Week:

Start Time:

Stop Time:

Weather:

Team Members:

NEIGHBORHOOD PROFILE (ACS CENSUS 2010)

Age of Residents: < 35: 59%, 35–64: 32%, 65+: 8%

Home Ownership: 76% Rent, 24% Own

Highest Educational Attainment: < High School: 8%, High School or Higher: 92%, Bachelor's or Higher: 51%

Race: White: 49%, Black / African American: 20%, Asian: 3%, Other: 2% *(Hispanic or Latino origin: 26%)*

USER BEHAVIOR OBSERVATIONS **(survey)**

Activities and Behavior (Are people sitting, reading, taking photos, texting, walking, etc.?)

Human Interaction (How are inhabitants of the space interacting? Are they interacting?)

Destinations and Origins (From where do people enter the site? Where are they going?)

Demographics (Do the demographics of the park reflect the neighborhood profile?)

SITE OBSERVATIONS **(context and mapping)**

Context (Is the surrounding area residential, commercial, highway, roads, water? Are there neighbors watching the park? Are people gathering on porches or adjacent private property?)

Landscape Elements (Are there benches? Play features? Bus shelters? Tables? Lights? Is the park accessible? Where do people gather? Where do people stand? Are there fences, and if so where? How do these define use and access? Do features appear designed to cater to specific demographics and age ranges?)

Condition of the Park (Is the park clean? Are there trashcans, and if so, full or empty? Does vegetation seem to be healthy? Is graffiti present?)

SELF REFLECTION **(introspection)**

Do you feel comfortable visiting this park? Do you think others feel equally comfortable using the park? Does the park feel like a "cosmopolitan canopy", where anyone could expect civility? Is it a pluralistic space that creates opportunities for diverse people to come together?

Observation Site

Wooster Square

ENTRANCES AND EXITS (FORMAL AND INFORMAL) WITH ARROWS

Note areas with/without fences, etc.

COMMON GROUP OR SINGLETON GATHERING LOCATIONS USING X (FEMALE) AND O (MALE)

While it may seem odd to connect gender to patron observations, the perceived safety of public spaces is often reflected in how female-identifying individuals occupy space.

MAPPING EXERCISE
Mark on the map above

COMMON PATHS OF MOVEMENT WITH LINES

If movement is limited, note if it may be impacted by surroundings? Time of day? Connect to observations on previous page.

MARK DOWN THE NATURE OF THE SURROUNDING CONTEXT

Residential, commercial, busy highway, quite street, good condition, etc.

VIII. THURSDAY

Cherry Ann Park Restoration

Park Planning in New Haven

LA&P

BY DAVID MOSER, ASLA

The four acres of land locally referred to as Cherry Ann Street Park is the northernmost portion of Beaver Pond Park, bordered by a K-8 public school and Beaver Pond to the south, Southern Connecticut State University to the west, and residential neighborhoods to the north and east. The population is predominately minority and low income. Developing a plan for Cherry Ann Street Park demonstrates some of the processes, constraints, and opportunities of park planning in New Haven.

Neighborhood residents wanted recreation and a safe place where children could play. New Haven park planners typically develop designs from input, review, and ultimately approval by the community. Through meetings and site walks with residents, a preliminary plan is developed. Planners then present the design at a community meeting to elicit discussion and feedback. Cherry Ann Street Park planners followed that process and the proposed improvements were well received with priorities established.

The site consists of dense, semi-impenetrable expanses of invasive vegetation surrounded by woods. It is wild and overgrown but feels serene. A big plus is pond access and views if the tangle of vegetation blocking it can be tamed. The site is remote but its seclusion seems like a plus — a quiet refuge in the midst of the city. From other perspectives these qualities are potential negatives.

Review of the plan with the parks maintenance director brought a mainly negative reaction.

Maintenance staff sees the good, the bad, and the ugly every day. They have to pick up the pieces of what doesn't work and deal with the unsavory side of what occurs in parks. They are very pragmatic and tell the truths that you do not want to hear but should listen very carefully to. The director felt that many of the improvements were problematic given the secluded location and lack of visibility. Improvements in another remote park location were recently removed because the site was plagued with fighting and vandalism. The director felt we needed to reconsider the plan.

The plan was acceptable to the police department provided that there were clear sightlines into the park. They suggested removal of a considerable amount of the woods and vegetation that border the park. This would greatly change its character. The police stressed that the success of the park would largely depend on the neighborhood's role in discouraging and keeping out negative behavior.

I wanted to be optimistic about the park design but needed more perspective. I asked the U.S. Fish and Wildlife Service (USFWS) to collaborate on the plan and to provide equipment, manpower, and expertise to control the invasives and open up the park. The USFWS brought in Connecticut Audubon and the Urban Resources Initiative (URI), with whom the Parks Department has successfully collaborated with in the past. URI, a non-profit affiliated with the Yale School of Forestry, has a mission to build community based land stewardship. Together, Audubon and URI could establish native plantings and improve habitats.

A community meeting was convened to regroup, reach out to residents, and introduce our new partners. Over a period of three months, URI led weekly park cleanups and conducted visioning workshops to help the community fine-tune their ideas for the park.

These efforts brought the neighborhoods together by working towards common goals. When the visioning process was complete, the plan was revised. The ideas were similar to the original plan, but more attuned to the physical and cultural conditions of the site.

A final community meeting completed the process. At the meeting it was gratifying to see the community energized and in charge of the proceedings. One brave soul said that he loved kids and parks but he thought that the site was too remote for park amenities. The majority were optimistic but the consensus was that improvements be made incrementally to build on successes and pull back if things failed.

Cherry Ann Street Park is still a work in progress. Its success will depend on community involvement and carefully implemented improvements.

— David Moser is a landscape architect with the New Haven City Plan Department.

THURSDAY
Cherry Ann & Beaver Ponds Park Urban Oasis Environmental Restoration

We will be removing invasive species and planting native vegetation alongside and in support of community volunteers, who have identified these projects as a priority in their community.

Cherry Ann Park Restoration

Since 2014 URI and other organizations have partnered with Miss Connie Vereen and her neighbors of Cherry Ann Park to remove invasive species, plant native vegetation, create trails and restore the park to create recreational opportunities and improve habitat (s*ee article above).*

To learn more about reclamation of Cherry Ann Park visit:
http://www.nhregister.com/lifestyle/20170610/new-haven-park-transformed-from-a-dump-into-a-showcase

Friends of Beaver Ponds Park Urban Oasis

The Beaver Ponds Park Urban Oasis is part of a network of Urban Oases in the New Haven Harbor Watershed supported by URI, US Fish & Wildlife Service, Audubon, Common Ground and volunteer groups to provide habitat for wildlife.

Below is one of the weekly summer emails sent out to members of the Friends of Beaver Ponds Park (FoBPP) group from leaders Nan Bartow and Bill Bidwell. The email gives a sense for what the group accomplishes on a weekly basis and how Nan and Bill acknowledge the contributions of each volunteer. This volunteer group works primarily by the Crescent & Fournier Street entrance, and has partnered with URI since 2004. The Urban Oasis is an extension of the work done by the FoBPP.

Wednesday Eve at the Park #5 7-11-18 Beaver Ponds Park

Dear FoBPP,

Rebecca and James Cramer welcomed **Beatrice Jean Maracuja Cramer** to the world at 3:41 Saturday morning, June 30. Beatrice and her parents and sister are all doing well and look forward to seeing everyone soon!
Our summer Greenspace group will meet for **Wednesday Evening at the Park, Session #5, July 11, at 6:00 PM in Beaver Ponds Park.** Look for us by the high benches just beyond the gate off of Fournier St. The group will weed and mulch our garden beds and collect litter. David will bring us compost and some perennials to plant. There is more to do in terms of weeding and watering. We always enjoy working with our friends and neighbors to improve our beautiful Beaver Ponds Park. The friendliness of our group always raises our spirits. Bring your children, your grandparents, and your neighbors. Let's celebrate our awesome neighborhood park.

Happy Gardening,

Nan and Bill

Wednesday Evening at the Park, Report # 4 June 27, 2018

Patrick Allen
Nan Bartow
Bill Bidwell
James Cramer
Rebecca Cramer and Cecelia
Daniel Headrick
Jim Hopkins
Judy Hopkins
Frank Pannenborg
Elaine Piraino-Holevoet
Pam Stanton
URI Intern-David McCarthy

After meeting in our circle to discuss the plans for the evening, we chose our respective jobs and set to work. Some people shoveled the pine bark mulch, which David brought us, off the URI truck and spread it along the berm garden following the boulders along Fournier Street. Moving higher up the hill this time, we weeded out the invasive mugwort and replanted the area with Russian Sages and several lovely daylilies. These plants do not need a lot of watering especially since we had the shredded pine bark mulch to spread around the plants. One group took the water cart, filled it up time after time, and delivered the water to all of our gardens where we have put in new perennials this year. Some volunteers magically whisked away all the wood and weed debris and delivered it to the brush pile near the red gate. A volunteer took photos, and a different one cleared the area around the stone benches and around the ninebark shrub on the Crescent Street side. David edged the weeds along the sidewalk on Fournier St.

Thanks to everyone for another productive evening of satisfying work and wonderful neighborly spirit.

Best,

Nan and Bill

To learn more about Urban Oasis sites visit:

http://www.nhregister.com/general-news/20140808/new-haven-state-officials-create-urban-oases-in-4-city-parks#.U-YlVKsAYPs.email

or

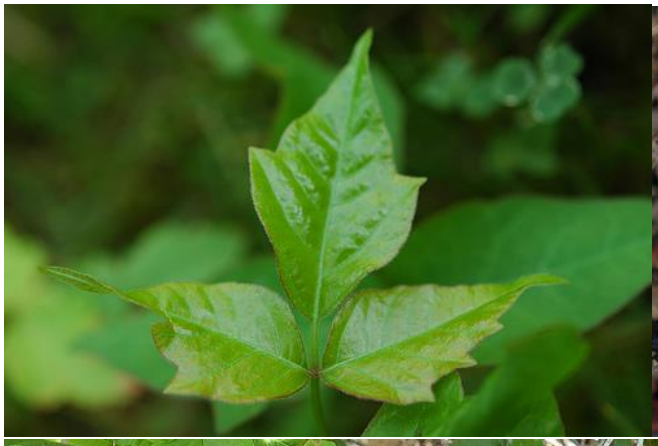
http://ct.audubon.org/news/providing-bird-habitat-through-urban-oases

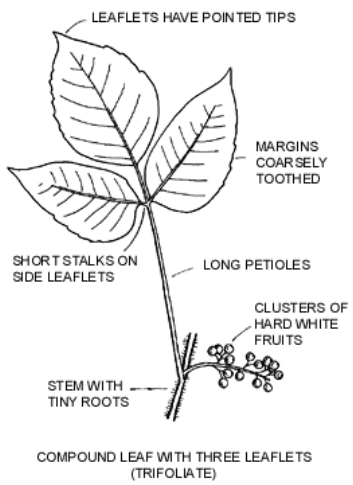
IX. APPENDICES

Poison Ivy Identification

Poison ivy (Rhus radicans) is a very common shrub species in the NE region, and it is one plant you have to know how to identify. There may be some blessed individuals who are not allergic to poison ivy, but most of us are (more than 50% of U.S. population). The leaves come in variety of shapes and colors, and their colors may change over the course of the year. Here are some simple tips to ID it:

1. "Leaves of three? Let them be!" – Poison ivy leaves grow in a cluster of three at the end of a long stem. The leaves also alternate and the middle leaflet is longer that the lateral leaflets.
2. The center leaflet usually has a short petiole and the lateral leaflets don't.
3. Poison ivy has small white berries
4. The leaves can turn red in autumn.





Additional Reading *and Useful Websites for Future Reference*

Chambers, R. 1994. The origins and practice of Participatory Rural Appraisal. *World Development* 22:953-969.

Conway, G. 1986. Agroecosystem Analysis for research and development. Winrock International Institute for Agricultural Development, Bangkok, 85 p.

Heberlein, T.A. 1988. Improving interdisciplinary research: integrating the natural and social sciences. *Society and Natural Resources* **1**:5-16.

Pretty, J. 1994. Alternative systems of inquiry for a sustainable agriculture. *IDS Bulletin-Institute of Development Studies* **25**: 37-48.

Collins, J. P., A. Kinzig, N. B. Grimm, W. F. Fagan, D. Hope, J. G. Wu and E. T. Borer (2000) A new urban ecology. *American Scientist* **88**: 416-425

Grove, J. M., Cadenasso, M., Pickett, S. T., Burch, W. R., & Machlis, G. E. (2015). *The Baltimore School of Urban Ecology: space, scale, and time for the study of cities*. Yale University Press.

Readings and information on USA housing policies and the effects of redlining on housing and violence in American cities see:

1. New Haven:
2. Seaberry, Camille. May 05, 2018. "CT Data Story Housing Segregation in Greater New Haven: How patterns of racial residential segregation are shaped by discriminatory federal, state and local policies. *Data Haven.* URL: http://www.ctdatahaven.org/reports/ct-data-story-housing-segregation-greater-new-haven
3. Interactive maps (including New Haven):
4. "Mapping Inequality: Redlining and the New Deal in America" URL: https://dsl.richmond.edu/panorama/redlining/#loc=13/41.3344/-72.9358&opacity=0.8&city=new-haven-ct
5. Radio:

   Fresh Air Interview with Terry Gross and Richard Rothstein. "Historian Says Don't 'Sanitize': How Our Government Created Ghettos", May 14, 2015 URL: https://www.npr.org/programs/fresh-air/2015/05/14/406699263/fresh-air-for-may-14-2015
6. News articles:

   Madrigal, Alexis. 2014. "The Racist Housing Policy That Made Your Neighborhood". *The Atlantic*
   The freewheeling opportunity associated with 20th-century California was not available to black residents, and that exclusion reverberates in our neighborhoods and communities today.
   URL: https://www.theatlantic.com/business/archive/2014/05/the-racist-housing-policy-that-made-your-neighborhood/371439/

   Bouie, Jamelle. 2014. "How We Built the Ghettos". *Daily Beast* URL: https://www.thedailybeast.com/how-we-built-the-ghettos
7. Policy Papers:

Rothstein, Richard. 2014. "The Making of Ferguson: Public Policies at the Root of its Troubles". *Economic Policy Institute.* URL: https://www.epi.org/publication/making-ferguson/

8. Video:

"The Disturbing History of the Suburbs". *College Humor.* Redlining: the racist housing policy from the Jim Crow era that still affects us today. URL: https://www.youtube.com/watch?v=ETR9qrVS17g

Websites:

City of New Haven Homepage

http:// www.newhavenct.gov

Census Bureau

http://factfinder.census.gov