



# **Visionmaker NYC**

## **A New Web-Based Urban Sustainability Visioning Tool**

Kim Fisher and Mario Giampieri  
Wildlife Conservation Society

NY GeoCon

October 30, 2015



















« CREATE NEW VISION

EXISTING VISIONS »



**MAP POSITION**

Find a place

**LIFESTYLE/CLIMATE SELECTORS**

**ENVIRONMENTAL PERFORMANCE**

**VISION CONTROL**

+ LOAD VISION

Welikia (1609)

Visionmaker NYC (2014)

**NOTIFICATIONS**

ZOOM 11

### SET UP YOUR NEW VISION

**Name:** Eric's Vision

**Year:** 2020

**Description:** I want a city with a steady money supply & lower storms...

**Share with:** only me

**Base on:**

- Welikia (1609)
- Visionmaker NYC (2014)





**MAP POSITION**

Find a place

---

**LIFESTYLE/CLIMATE SELECTORS**

**ENVIRONMENTAL PERFORMANCE**

**WATER** Stormwater 0

**CARBON** Greenhouse Ga

**BIODIVERSITY** Species

**POPULATION** Residents 0

**RECALCULATE**

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**VISION CONTROL**

+ LOAD VISION

Eric's Vision

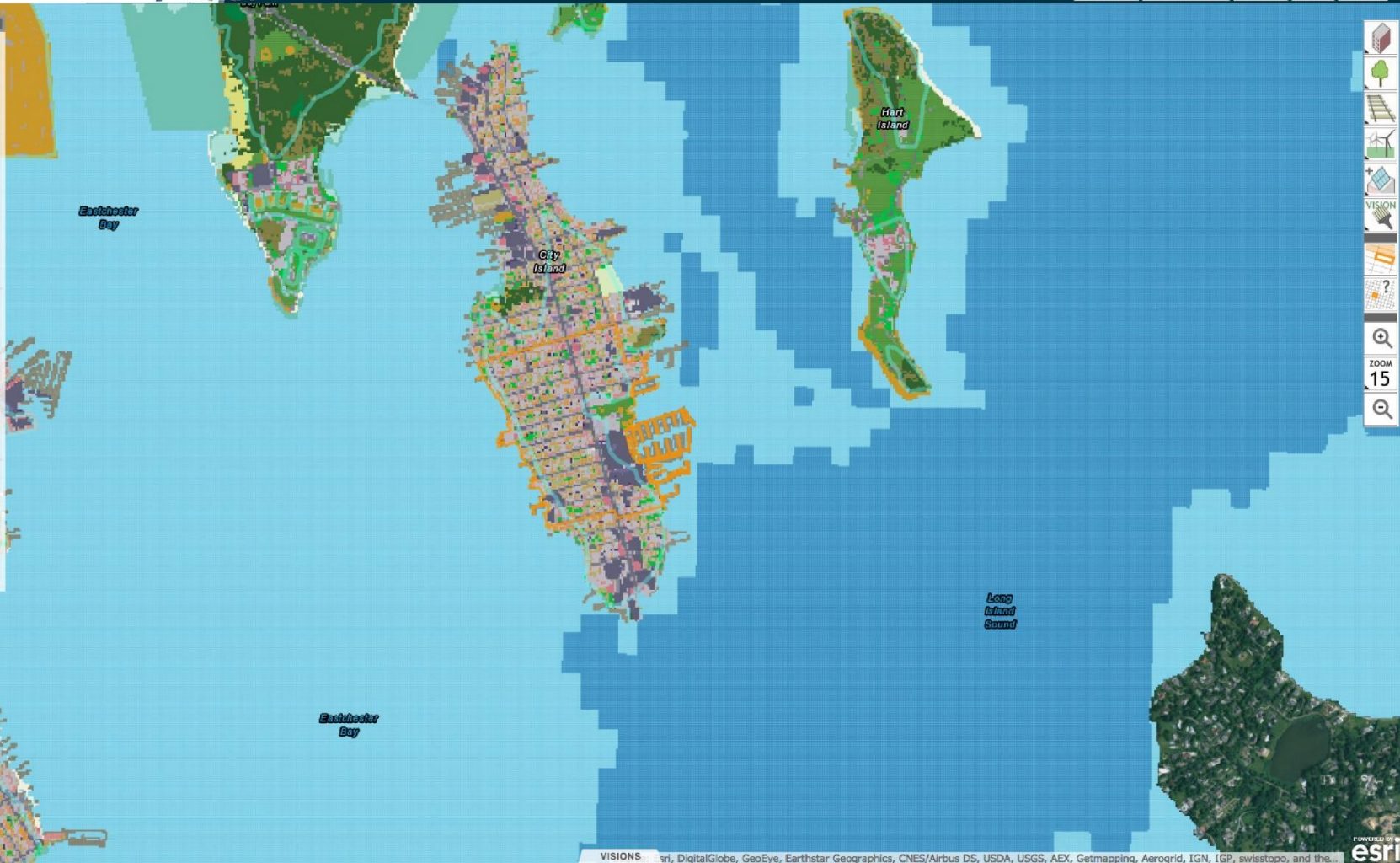
Welke (1609)

Visionmaker NYC (2014)

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**NOTIFICATIONS**

● Vision Eric's Vision created



Map navigation and tool icons:

- Home icon
- Tree icon
- Wind turbine icon
- Wind turbine icon
- VISION icon
- Hand icon
- Question mark icon
- Zoom in icon
- Zoom out icon
- Zoom 15
- Map icon



**MAP POSITION**  
Find a place

**LIFESTYLE/CLIMATE SELECTORS**

**ENVIRONMENTAL PERFORMANCE**

**WATER** Stormwater 0

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RECALCULATE

**VISION CONTROL**

+ LOAD VISION

Eric's Vision

Welke (1609)

Visionmaker NYC (2014)

**NOTIFICATIONS**

● Vision Eric's Vision created



Map navigation and tool icons:

- Home
- Layers
- Legend
- Measure
- VISION
- Layers
- Help
- Zoom in
- Zoom out
- Zoom 15
- Map



**MAP POSITION**

Find a place

---

**LIFESTYLE/CLIMATE SELECTORS**

**ENVIRONMENTAL PERFORMANCE**

**WATER** Stormwater

**CARBON** Greenhouse Ga

**BIODIVERSITY** Species

**POPULATION** Residents

RECALCULATE

---

**VISION CONTROL**

+ LOAD VISION

Eric's Vision

Wellka (1609)

Visionmaker NYC (2014)

---

**NOTIFICATIONS**

● Vision Eric's Vision created



**SINGLE FAMILY HOME**

By W. Marsh (Own work) [CFL or CC-BY-SA-3.0], via Wikimedia Commons

Any building or structure designed and occupied exclusively for residence purposes on a long-term basis for more... [Read more >](#)

Number of stories:

parameter	value	units	info
air changes per hour	1.15	air changes / hour	
cost to build	1758.46859415	\$NYC 2014 / m <sup>2</sup>	
demolition cost	10.44099309	\$NYC 2014 /	

**USE THIS ECOSYSTEM TOOL**

- COTTAGES / MOBILE HOME
- SINGLE FAMILY HOME
- APARTMENT BUILDING
- RETAIL BUILDING
- OFFICE BUILDING
- MIXED USE: RETAIL / RESIDENTIAL BUILDING
- MIXED USE: RETAIL / OFFICE BUILDING
- HOTEL
- HOSPITAL
- SCHOOL OR UNIVERSITY
- FACTORY
- PUBLIC ASSEMBLY HALL
- WAREHOUSE
- COMPUTER DATA CENTER
- GREENHOUSE / VERTICAL FARM
- GARAGE
- STADIUM
- MIXED USE: OFFICE / RESIDENTIAL BUILDING
- DERELICT STRUCTURES
- WATER/WASTEWATER STORAGE TANK
- AIRPORT TERMINAL
- RESTAURANT
- MIXED USE: RESTAURANT / RETAIL BUILDING
- MIXED USE: RESTAURANT / RESIDENTIAL BUILDING
- MIXED USE: RESTAURANT / OFFICE BUILDING

VISION

**ZOOM**



**MAP POSITION**

Find a place

**LIFESTYLE/CLIMATE SELECTORS**

Lenape Person

Average New Yorker

Average American

Eco-hipster

Average Earthling

**PRECIPITATION EVENT**

Showers

**ENVIRONMENTAL PERFORMANCE**

**WATER** Stormwater 0

**CARBON** Greenhouse Ga -

**BIODIVERSITY** Species -

**POPULATION** Residents 0

RECALCULATE

**VISION CONTROL**

+ LOAD VISION

Eric's Vision

Wellida (1609)

Visionmaker NYC (2014)

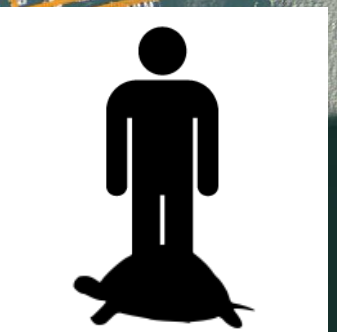


Lifestyle Selector



VISION

ZOOM 17







**Climate  
Selector**

**MAP POSITION**

Find a place

**LIFESTYLE/CLIMATE SELECTORS**

**LIFESTYLE**

- Average New Yorker
- Past Climate in 1800
- Baseline Climate (1970-2010)
- Future Climate in 2050s**
- Future Climate in 2060s
- Future Climate in 2080s
- Future Climate in 2100s

**ENVIRONMENTAL PERFORMANCE**

**WATER** Stormwater 0

**CARBON** Greenhouse Ga -

**BIODIVERSITY** Species -

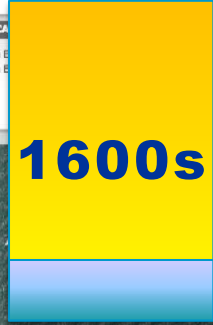
**POPULATION** Residents 0

RECALCULATE

**VISION CONTROL**

+ LOAD VISION

- Eric's Vision
- Wellside (1609)
- Visionmaker NYC (2014)





**MAP POSITION**  
Find a place

**LIFESTYLE/CLIMATE SELECTORS**

**LIFESTYLE**  
Average New Yorker

**CLIMATE**  
Baseline Climate (1970-2010)

**PRECIPITATION EVENT**  
Heavy day

**ENVIRONMENTAL PERFORMANCE**

**WATER** Stormwater  
5,333,839

**CARBON** Greenhouse Gas  
36,387,413

**BIODIVERSITY** Species  
243

**POPULATION** Residents  
2,628

**VISION CONTROL**  
+ LOAD VISION

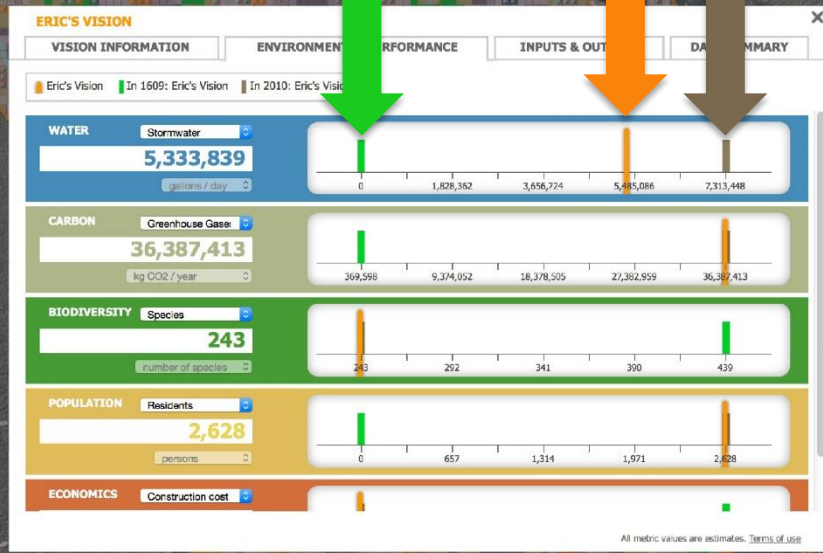
Eric's Vision

Weika (1609)

Visionmaker NYC (2014)

**NOTIFICATIONS**

- Vision Eric's Vision saved
- Vision Eric's Vision saved



Your vision today

1609



VISION

ZOOM 17



**MAP POSITION**  
Find a place

**LIFESTYLE/CLIMATE SELECTORS**

LIFESTYLE  
Average New Yorker

CLIMATE  
Base-line Climate (1970-2010)

PRECIPITATION EVENT  
Rainy day

**ENVIRONMENTAL PERFORMANCE**

**WATER** Stormwater  
5,333,839

**CARBON** Greenhouse G.  
36,387,413

**BIODIVERSITY** Species  
243

**POPULATION** Residents  
2,628

SHOW DETAILS

**VISION CONTROL**

+ LOAD VISION

Eric's Vision

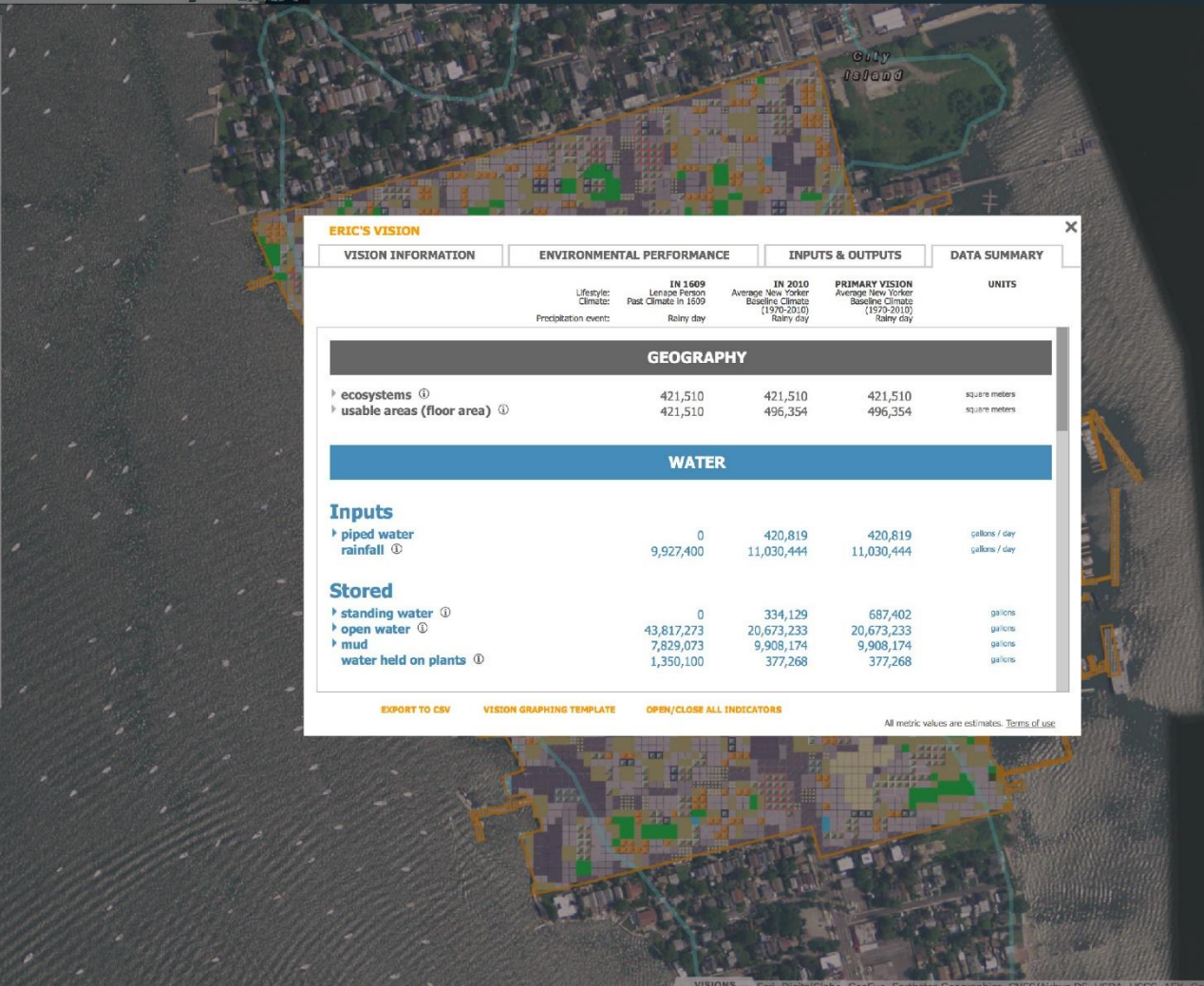
Wetika (1609)

Visionmaker NYC (2014)

**NOTIFICATIONS**

Vision Eric's Vision saved

Vision Eric's Vision saved



**ERIC'S VISION**

VISION INFORMATION    ENVIRONMENTAL PERFORMANCE    INPUTS & OUTPUTS    DATA SUMMARY

	IN 1609 Lifestyle: Climate: Precipitation event:	IN 2010 Average New Yorker Baseline Climate (1970-2010) Rainy day	PRIMARY VISION Average New Yorker Baseline Climate (1970-2010) Rainy day	UNITS
<b>GEOGRAPHY</b>				
ecosystems ①	421,510	421,510	421,510	square meters
usable areas (floor area) ①	421,510	496,354	496,354	square meters
<b>WATER</b>				
<b>Inputs</b>				
piped water	0	420,819	420,819	gallons / day
rainfall ①	9,927,400	11,030,444	11,030,444	gallons / day
<b>Stored</b>				
standing water ①	0	334,129	687,402	gallons
open water ①	43,817,273	20,673,233	20,673,233	gallons
mud	7,829,073	9,908,174	9,908,174	gallons
water held on plants ①	1,350,100	377,268	377,268	gallons

EXPORT TO CSV    VISION GRAPHING TEMPLATE    OPEN/CLOSE ALL INDICATORS

All metric values are estimates. [Terms of use](#)

Eric's Vision ①

VISION

ZOOM 17







# Scaling Challenge: Web map painting

Client-side map painting and  
calculation in the browser





The Web framework for perfectionists with deadlines.  
Django makes it easier to build better Web apps more quickly and with less code.

## Meet Django

Django is a high-level Python Web framework that encourages rapid development and clean, pragmatic design.

Developed by a fast-moving online-news operation, Django was designed to handle two challenges: the intensive deadlines of a newsroom and the stringent requirements of the experienced Web developers who wrote it. It lets you build high-performing, elegant Web applications quickly.

Django focuses on automating as much as possible and adhering to the [DRY principle](#).

Dive in by [reading the overview](#) →

When you're ready to code, read the [installation guide](#) and [tutorial](#).

### The Django framework

#### Object-relational mapper

Define your **data models** entirely in Python. You get a rich, **dynamic database-access API** for free — but you can still write SQL if needed.

#### Automatic admin interface

Save yourself the tedious work of creating interfaces for people to add and update content. **Django does that automatically**, and it's production-ready.

#### Elegant URL design

Design pretty, **craft-free URLs** with no framework-specific limitations. Be as flexible as you like.

#### Template system

Use Django's powerful, extensible and designer-friendly **template language** to separate design, content and Python code.

#### Cache system

Hook into memcached or other cache frameworks for **super performance** — caching is as granular as you need.

#### Internationalization

Django has full support for **multi-language applications**, letting you specify translation strings and providing hooks for language-specific functionality.



# BitNami

Installer  
Django Stack 1.4.5 for Windows

Virtual Machine  
Django Stack on VMware

Cloud Server  
Django Stack on Amazon, Azure



- < Hide Table of Contents
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  - Cross Origin Resource Sharing(CORS) - buffer
  - Drag and drop to display data
  - History API to track selected feature
- > Image Layers
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- > Maps from ArcGIS.com
- > Mobile
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- > Tiled Layers
- > Time
- > Vector Feature Layers

## Canvas with raster layer

[View live sample](#)  
[Download as a zip file](#)



### Description

This sample is experimental and may not work on all browsers. Visit [caniuse.com](http://caniuse.com) to determine if the canvas element used in this sample is available for your browser.

This sample shows how to use the HTML5 Canvas element to draw a raster image. When the application loads a new layer that uses the HTML5 canvas element called RasterLayer is created and added to the map. This snippet, from the custom RasterLayer.js class shows the creation of a Canvas element with the same width and height as the map.

```
var element = this._element = dojo.create("canvas", {
  width: map.width + "px",
  height: map.height + "px",
  style: "position: absolute; left: 0px; top: 0px;"
}, container);
```

The newly added raster layer is populated with elevation data from using the [Elevation Server Object Extension](#) from one of Esri's sample servers. Now that IE9 is released, canvas is supported on all major browsers so rendering raster images using the Canvas element could provide a way to display client-side heat maps.

### Code

```
<!DOCTYPE html>
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8">
<meta http-equiv="X-UA-Compatible" content="IE=7, IE=9, IE=10">
<title>Raster Layer</title>
<link rol="stylesheet" href="http://serverapi.arcgisonline.com/jsapi/arcgis/3.5/js/dojo/dijit/themes/claro/claro.css">
<link rol="stylesheet" href="http://serverapi.arcgisonline.com/jsapi/arcgis/3.5/js/esri/css/esri.css">
<style>
html,body {
  width:98%;
  height:98%;
  margin: 0 1%;
  padding: 10px 0 0 0;
}

#mapCanvas {
  border:solid 1px #888;
  padding:0;
}

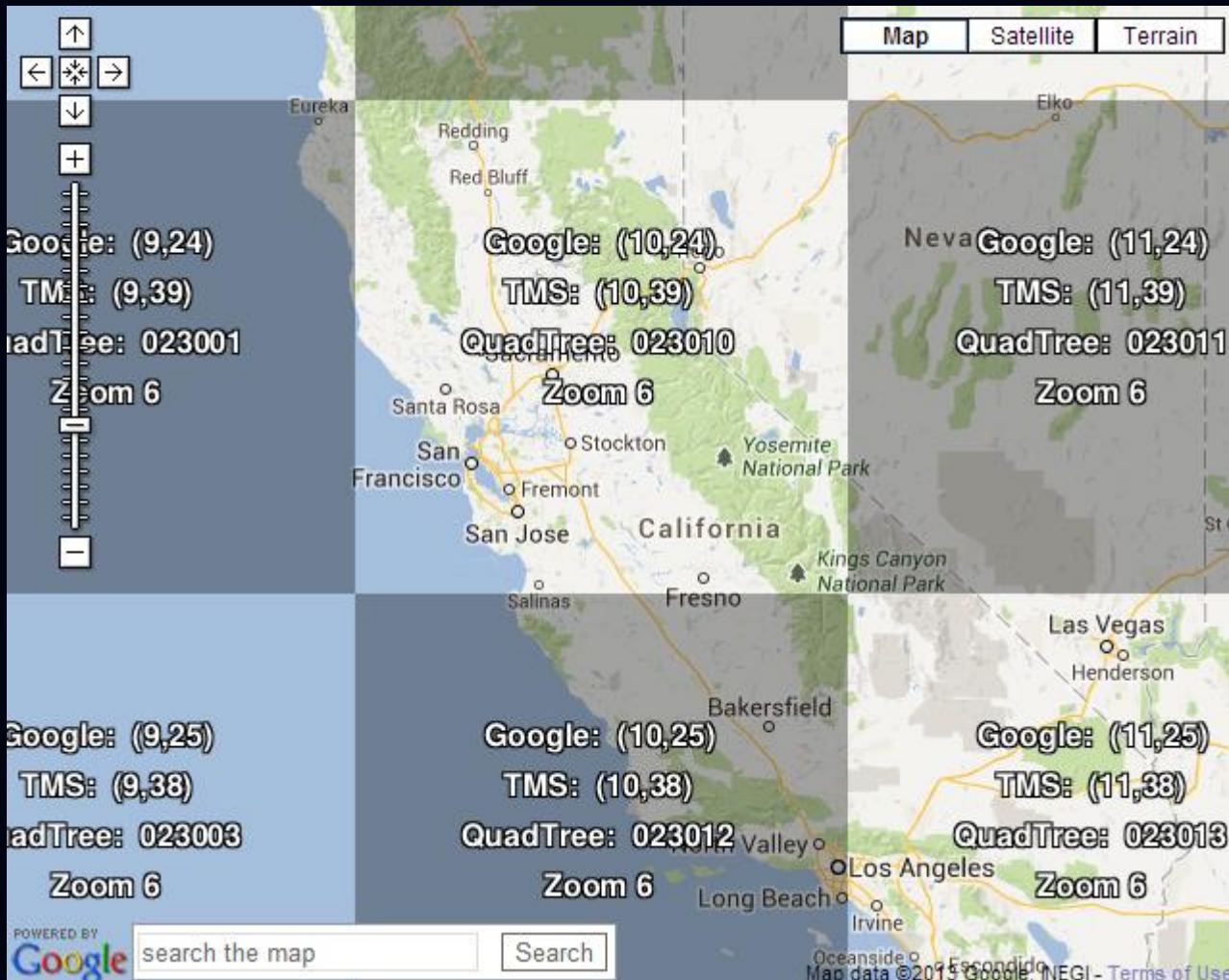
#status {
  background-color:#000;
  color:#FFF;
  border:solid 1px #FFF;
  -moz-border-radius:5px;
```

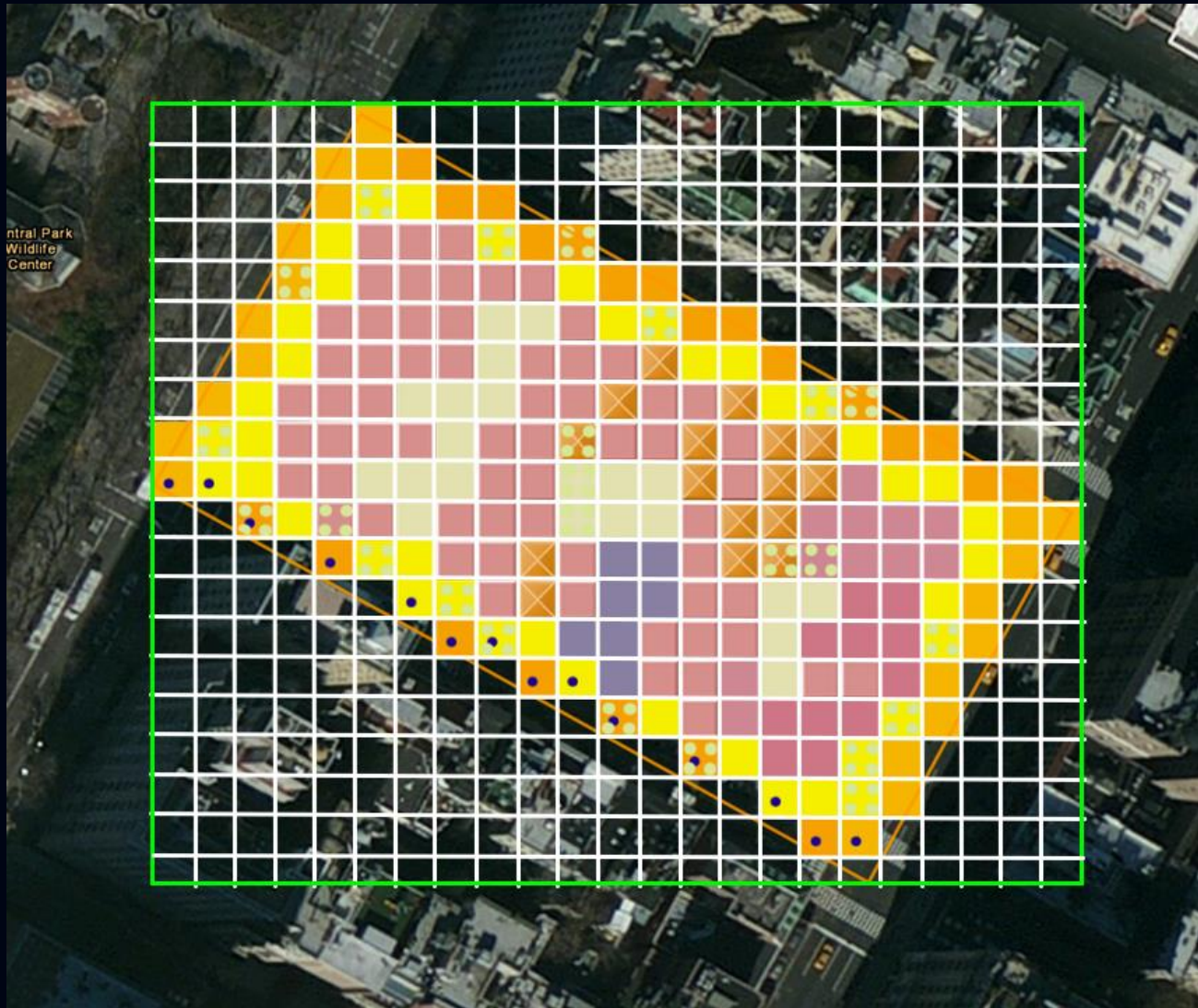


# RasterLayer PoC

- Adapt the Esri sample to our use case
- 10 meter cells
- Click and drag the mouse to “paint” cells
- Just solid color fills at first (png fills later)
- Persist the cell values
- Raster layer should pan and zoom like other map layers
- Ensure support for multiple raster layers

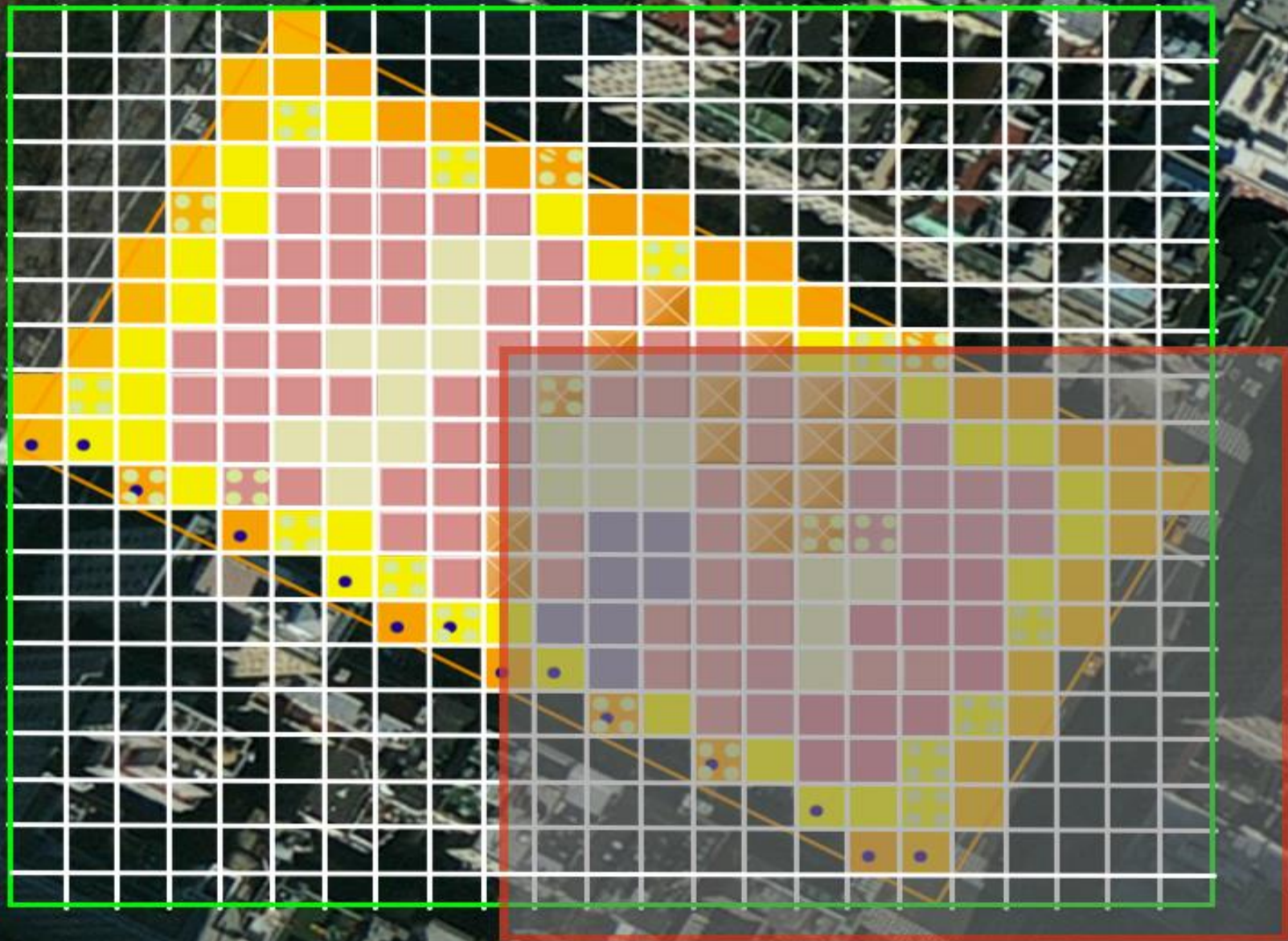








Central Park  
Wildlife  
Center



# Possible Directions

- More robust and scalable
- Server-based calculation engine
- Improved user interface
- Finished, public API
- More metrics: economics, social justice, health, ...
- Customization features: lifestyle, climate, ecosystem, classroom-related
- Other cities!



Thoughts?

Thanks!



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[mgiampieri@wcs.org](mailto:mgiampieri@wcs.org)







# Parameter values

## Parameter Values Management

Parameter value table:

### Parameter Values

#### Search

Ecosystem   
 Parameter   
 Units   
 Reference   
 Canonical  No  Yes

Search type:

<a href="#">+ Add New</a>	ID	Canonical	Ecosystem	Parameter	Value	Units	Reference	Location	Zotero ID	Last Modified	Delete
<a href="#">Edit</a>	175	<input checked="" type="checkbox"/>	Estuary	plant biomass density	0.000000	g / m2	Assumed	New York City: Urban Area ()	TTZFMGZC	2013-02-16 16:38:30.11462-05	<a href="#">Delete</a>
<a href="#">Edit</a>	176	<input type="checkbox"/>	Beach	plant biomass density	93.000000	g / m2	Barbour & Robichaux 1976 Beach Phytomass along the California Coast	"Gldb" California (latitude 41 deg 19 min): Beach (1973-1974)	TNGUFKZP	2012-09-18 12:02:29.23622-04	<a href="#">Delete</a>
<a href="#">Edit</a>	177	<input type="checkbox"/>	Salt marsh	plant biomass density	406.000000	g / m2	Long, Mason 1983 - Saltmarsh Ecology	Massachusetts, U.S.A.: Salt marsh ()	FCWFI4TQ	2012-11-26 11:38:12.736368-05	<a href="#">Delete</a>
<a href="#">Edit</a>	178	<input checked="" type="checkbox"/>	Freshwater marsh	plant biomass density	1092.000000	g / m2	Flemer et al. 1978 Standing crops of marsh vegetation of two tributaries of Chesapeake Bay	Patuxent River, Maryland: Freshwater and brackish marshes (1973)	F9U64X3K	2013-01-12 10:01:26.239575-05	<a href="#">Delete</a>
<a href="#">Edit</a>	179	<input type="checkbox"/>	Hardwood swamp	plant biomass density	131195.000000	kg / ha	Ehrenfeld & Gulick 1981 Structure and dynamics of hardwood swamps in the New Jersey Pine Barrens:...	Muskingum Brook at Route 206; Tabernacle Township, NJ: Hardwood swamp (late 1970s)	D5ZW5279	2012-08-21 22:32:14.322129-04	<a href="#">Delete</a>
<a href="#">Edit</a>	180	<input checked="" type="checkbox"/>	Pond	plant biomass density	0.125000	kg / m2	Westlake 1963 Comparison of Plant Productivity	Lake Erken, Sweden: Eutrophic lake (1954)	H7CKAWR5	2012-09-18 12:43:36.481342-04	<a href="#">Delete</a>
<a href="#">Edit</a>	181	<input checked="" type="checkbox"/>	Disturbed Land	plant biomass density	156.000000	g / 0.25 m2	Carson & Peterson 1990 Role of litter in an old-field...	Hutcheson Memorial Forest, New Brunswick, New Jersey: Solidago-dominated old field (1985-1986)	3KQDWUQ5	2013-01-12 10:00:19.373632-05	<a href="#">Delete</a>
<a href="#">Edit</a>	182	<input checked="" type="checkbox"/>	Meadow	plant biomass density	1.600000	kg / m2	Barbour et al. 1987 Terrestrial Plant Ecology	Global: Temperate grassland ()	4SBHTDD8	2012-11-26 12:06:42.263244-05	<a href="#">Delete</a>
<a href="#">Edit</a>	183	<input checked="" type="checkbox"/>	Shrub land	plant biomass density	6.000000	kg / m2	Barbour et al. 1987 Terrestrial Plant Ecology	Global: Woodland and shrubland ()	4SBHTDD8	2012-11-26 12:08:30.708387-05	<a href="#">Delete</a>
<a href="#">Edit</a>	184	<input checked="" type="checkbox"/>	Hemlock – northern	plant	110.900000	Mg / ha	Smith & Heath 2006 Land use change and forestry annex to US Greenhouse	Northeastern USA: White/Red/Jack Pine Forest ()	PBUNVJ35	2013-01-12	<a href="#">Delete</a>



# Parameter values

## Mannahatta 2409

Welcome back **Kim Fisher** (Logout),  
 Account ▾ Projects ▾ Administration ▾

[overview](#) [messages](#) [tasks](#) [milestones](#) [references](#) **parameters** [parameters/units](#) [people](#)

» Dashboard » Mannahatta 2409 » Parameter Values Management

Search...

## Parameter Values Management

Parameter value table:

### Parameter Values

#### Search

Fuel:

Lifestyle:

Parameter:

Units:

Reference:

Canonical:  No  Yes

Search type:

+ Add New	ID	Canonical	Fuel	Lifestyle	Parameter	Value	Units	Reference	Location	Zotero ID	Last Modified	Delete
<a href="#">Edit</a>	6	<input checked="" type="checkbox"/>	Biodiesel	Lenape Person	proportion of heating provided by fuel	0.000000	% proportion (0-100)	Assumed	New York City: Mannahatta ()	<a href="#">ITZFMGZC</a>		<a href="#">Delete</a>
<a href="#">Edit</a>	7	<input checked="" type="checkbox"/>	Biodiesel	Average New Yorker	proportion of heating provided by fuel	0.000000	% proportion (0-100)	NYSERDA 2012 - Patterns and Trends New York State Energy Profiles: 1996-2010	New York City: Buildings (2010)	<a href="#">46E5CT69</a>	2012-10-03 11:57:52.824395-04	<a href="#">Delete</a>
<a href="#">Edit</a>	8	<input checked="" type="checkbox"/>	Biodiesel	Average American	proportion of heating provided by fuel	0.000000	% proportion (0-100)	U.S. Department of Energy 2012 - 2011 Buildings Energy Data Book	US: Buildings (2010)	<a href="#">6PZ3CSBB</a>	2012-09-13 14:33:43.85648-04	<a href="#">Delete</a>
<a href="#">Edit</a>	9	<input checked="" type="checkbox"/>	Biodiesel	No-Impact Man/Woman	proportion of heating provided by fuel	0.000000	% (0 - 100)	Assumed	New York City: Urban Area ()	<a href="#">ITZFMGZC</a>	2012-10-15 15:32:01.348412-04	<a href="#">Delete</a>
<a href="#">Edit</a>	10	<input checked="" type="checkbox"/>	Biodiesel	Average Earthling	proportion of heating provided by fuel	2.755240	% proportion (0-100)	IEA 2011 - Statistics & Balances	Global: All (2009)	<a href="#">8RRWNW2U</a>	2013-01-14 16:56:37.766316-05	<a href="#">Delete</a>
<a href="#">Edit</a>	11	<input checked="" type="checkbox"/>	Coal	Lenape Person	proportion of heating provided by fuel	0.000000	% proportion (0-100)	Assumed	New York City: Mannahatta ()	<a href="#">ITZFMGZC</a>		<a href="#">Delete</a>
<a href="#">Edit</a>	12	<input checked="" type="checkbox"/>	Coal	Average New Yorker	proportion of heating provided by fuel	0.104739	% proportion (0-100)	NYSERDA 2012 - Patterns and Trends New York State Energy Profiles: 1996-2010	New York City: Buildings (2010)	<a href="#">46E5CT69</a>	2013-01-14 16:18:57.837575-05	<a href="#">Delete</a>
<a href="#">Edit</a>	13	<input checked="" type="checkbox"/>	Coal	Average American	proportion of heating provided by fuel	0.925900	% proportion (0-100)	U.S. Department of Energy 2012 - 2011 Buildings Energy Data Book	US: Buildings (2010)	<a href="#">6PZ3CSBB</a>	2012-09-13 14:06:33.747047-04	<a href="#">Delete</a>
<a href="#">Edit</a>	14	<input checked="" type="checkbox"/>	Coal	No-Impact Man/Woman	proportion of heating provided by fuel	0.000000	% (0 - 100)	Assumed	New York City: Urban Area ()	<a href="#">ITZFMGZC</a>	2012-10-15 15:22:34.812103-04	<a href="#">Delete</a>
<a href="#">Edit</a>	15	<input checked="" type="checkbox"/>	Coal	Average Earthling	proportion of heating provided by fuel	37.930446	% proportion (0-100)	IEA 2011 - Statistics & Balances	Global: All (2009)	<a href="#">8RRWNW2U</a>	2013-01-14 16:58:56.649409-05	<a href="#">Delete</a>
<a href="#">Edit</a>	16	<input checked="" type="checkbox"/>	Diesel / light fuel oil	Lenape Person	proportion of heating provided by fuel	0.000000	% proportion (0-100)	Assumed	New York City: Mannahatta ()	<a href="#">ITZFMGZC</a>		<a href="#">Delete</a>
<a href="#">Edit</a>	17	<input checked="" type="checkbox"/>	Diesel / light fuel oil	Average New Yorker	proportion of heating provided by fuel	0.000000	% proportion (0-100)	NYSERDA 2012 - Patterns and Trends New York State Energy Profiles: 1996-2010	New York City: Buildings (2010)	<a href="#">46E5CT69</a>	2012-10-03 11:58:10.402917-04	<a href="#">Delete</a>
<a href="#">Edit</a>	18	<input checked="" type="checkbox"/>	Diesel / light fuel oil	Average American	proportion of heating provided by fuel	0.000000	% proportion (0-100)	U.S. Department of Energy 2012 - 2011 Buildings Energy Data Book	US: Buildings (2010)	<a href="#">6PZ3CSBB</a>	2012-09-13 14:34:26.582633-04	<a href="#">Delete</a>
<a href="#">Edit</a>	19	<input checked="" type="checkbox"/>	Diesel / light fuel oil	No-Impact	proportion of heating provided by fuel	0.000000	% (0 - 100)	Assumed	New York City: Urban Area ()	<a href="#">ITZFMGZC</a>	2012-10-15	<a href="#">Delete</a>

# Parameter values

m2409 - [D:\\_data\PycharmProjects\m2409] - D:\WCs\mannahatta2409.org\m2409static\js\welikia\_vars.js - PyCharm 2.7.3

File Edit View Navigate Code Refactor Run Tools VCS Window Help

Project: mannahatta2409.org [m2409] (D:\WCs\mar...)

```
181 // PARAMETER VALUES
182
183 // GLOBAL PARAMETERS
184
185 var animal_heat_generation_rate = 0.016; // units: W / kg [269]
186 var animal_respiration_rate = 0.720344; // units: kg CO2/kg biomass/year [270]
187 var biomass_cat = 4.082328; // units: kg [241]
188 var biomass_dog = 18.0529614; // units: kg [241]
189 var carbon_content_animal_biomass = 0.18; // units: % (0 - 100) [53]
190 var carbon_content_food_carbohydrates = null; // units: % (0 - 100) [53]
191 var carbon_content_food_fats = null; // units: % (0 - 100) [53]
192 var carbon_content_food_fiber = null; // units: % (0 - 100) [53]
193 var carbon_content_food_proteins = null; // units: % (0 - 100) [53]
194 var carbon_content_litterfall_downwood = null; // units: % (0 - 100) [53]
195 var carbon_content_organic_solid_waste = 0.326; // units: % (0 - 100) [53]
196 var carbon_content_plant_biomass = null; // units: kg / m2 [102]
197 var carbon_content_soil_organic_matter = 0.017; // units: % (0 - 100) [53]
198 var days_per_year = 365.242; // units: days [72]
199 var density_liquid_waste = 2.73; // units: kg / gallon [23]
200 var geothermal_heating_production_density = 40; // units: kWh / m2 / yr [236]
201 var hours_per_day = 24; // units: hours / day [10]
202 var photovoltaic_electricity_production_density = 1647.24214; // units: kWh / m2 / yr [236]
203 var proportion_impervious_water_storage_filled_initial_conditions = 0; // units: proportion (0-1) [237]
204 var proportion_pervious_water_storage_filled_initial_conditions = 0; // units: proportion (0-1) [237]
205 var solar_heat_production_density = 87.86099222; // units: kWh / m2 / yr [236]
206 var water_content_steam = 0.1; // units: proportion (0-1) [237]
207
208 // PARAMETERS KEYED BY CLIMATE
209 var cooling_days = {1:169, 2:169, 3:185, 4:208, 5:278}; // units: days [72]
210 var cooling_degree_days = {1:1141, 2:1141, 3:1695, 4:1538, 5:2120}; // units: deg C * day [247]
211 var equivalent_latitude = {1:40.7142, 2:40.7142, 3:38.89, 4:35.2269, 5:32.0507}; // units: latitude (decimal degrees) [248]
212 var heating_days = {1:275, 2:275, 3:277, 4:256, 5:216}; // units: days [72]
213 var heating_degree_days = {1:4777, 2:4777, 3:4055, 4:3162, 5:1799}; // units: deg C * day [247]
214
215 // PARAMETERS KEYED BY DISTANCE
216 var midpoint_distance_category = {1:0.25, 2:0.75, 3:1.5, 4:3.5, 5:7.5, 6:15, 7:35, 8:75, 9:150, 10:1000}; // units: miles [87]
217
218 // PARAMETERS KEYED BY LIFESTYLE THEN DISTANCE THEN TRANSPORTMODE
219 var proportion_trips_made_mode_distance = {1:{1:1:0, 2:0, 3:0, 4:0, 5:0, 6:0, 7:0, 8:0, 9:0, 10:0.25}, 2:{1:0, 2:0, 3:0, 4:0, 5:0, 6:0, 7:0, 8:0, 9:0, 10:0.25}, 3:{1:0, 2:0, 3:0, 4:0, 5:0, 6:0, 7:0, 8:0, 9:0, 10:0.25}}; // units: proportion (0-1) [237]
220
221 // PARAMETERS KEYED BY ECOSYSTEM
222 var electricity_production_rate_density = {1:0, 2:0, 3:0, 4:0, 5:0, 6:0, 7:0, 8:0, 9:0, 10:0, 11:0, 12:0, 13:0, 14:0, 15:0, 16:0, 17:0, 18:0, 19:0, 20:0, 21:0, 22:0, 23:0, 24:0, 25:0, 26:0, 27:0, 28:0, 29:0, 30:0}; // units: kWh / m2 / yr [236]
223 var harvest_rate_density = {1:0, 2:0, 3:0, 4:0, 5:0, 6:0, 7:0, 8:0, 9:0, 10:0, 11:0, 12:0, 13:0, 14:0, 15:0, 16:0, 17:0, 18:0, 19:0, 20:0, 21:0, 22:0, 23:0, 24:0, 25:0, 26:0, 27:0, 28:0, 29:0, 30:0, 32:0.795}; // units: kg / m2 / yr [236]
224 var herbivory_rate_density = {1:0.001666, 3:0.11, 4:0.001666, 5:1.052, 6:0.2535, 7:0, 8:0.144, 9:0.12726, 10:0.07074, 11:0.0486, 12:0.0972, 13:0.0972, 14:0.00306, 15:0, 16:0.01746, 17:0, 18:0, 19:0, 20:0, 21:0, 22:0, 23:0, 24:0, 25:0, 26:0, 27:0, 28:0, 29:0, 30:0, 32:0.795}; // units: kg / m2 / yr [236]
225 var impervious_storage_capacity = {1:3, 2:3, 3:3, 4:3, 5:3, 6:3, 7:3, 8:3, 9:3, 10:3, 11:3, 12:3, 13:3, 14:3, 15:3, 16:3, 17:3, 18:3, 19:3, 20:3, 21:3, 22:3, 23:3, 24:3, 25:3, 26:3, 27:3, 28:3, 29:3, 30:3, 32:3}; // units: m3 / m2 [237]
226 var litterfall_biomass_density = {1:0, 2:0.373, 3:14, 3:11, 4:0.462, 5:0.298, 6:0.5484, 7:0.2672, 8:0.00000106, 9:0.8557, 10:0.3711, 11:0.079, 12:1.1839, 13:1.313, 14:0.1, 15:0, 16:1.750704, 17:0, 18:0, 19:0, 20:0, 21:0, 22:0, 23:0, 24:0, 25:0, 26:0, 27:0, 28:0, 29:0, 30:0, 32:0}; // units: kg / m2 / yr [236]
227 var litterfall_rate_density = {1:0.65, 2:0.02, 3:17.5, 4:0.322, 5:0.3650333, 6:0.2477, 7:0.5547, 8:0.0005547, 9:0.0000014, 10:0.312, 11:0.058, 12:0.198, 13:0.148, 14:0.025, 15:0, 16:0.026, 17:0, 18:0, 19:0, 20:0, 21:0, 22:0, 23:0, 24:0, 25:0, 26:0, 27:0, 28:0, 29:0, 30:0, 32:0}; // units: kg / m2 / yr [236]
228 var net_primary_productivity = {1:0.27, 2:1.767, 3:0.0213, 4:1.79, 5:1.66563, 6:0.845, 7:0.225, 8:4800, 9:0.707, 10:0.393, 11:0.27, 12:0.54, 13:0.54, 14:0.017, 15:0, 16:0.097, 17:0, 18:0, 19:0, 20:0, 21:0, 22:0, 23:0, 24:0, 25:0, 26:0, 27:0, 28:0, 29:0, 30:0, 32:0}; // units: kg / m2 / yr [236]
229 var open_water_depth = {1:10000, 2:0, 3:0, 4:689, 5:0, 6:0, 7:0, 8:1800, 9:0, 10:0, 11:0, 12:0, 13:0, 14:0, 15:0, 16:0, 17:0, 18:0, 19:0, 20:0, 21:0, 22:0, 23:0, 24:0, 25:0, 26:0, 27:0, 28:0, 29:0, 30:0, 32:0}; // units: m [237]
230 var pervious_soil_storage_capacity = {1:1000, 2:0, 3:40.0000216, 4:70.0000378, 5:130.0000702, 6:1440, 7:10, 8:1000, 9:143.30007738, 10:125.0000675, 11:40.0000216, 12:130.0000702, 13:130.0000702, 14:120.00006}; // units: m3 / m2 [237]
```

Invalid Project Interpreter: Cannot run the project interpreter. Configure... (7/12/13 11:22 AM)

Event Log





Enter Manhattan Address or Landmark:

Get Location

1609 Layer

Streets

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# ABOUT THIS BLOCK



## 61ST ST & 62ND ST BETWEEN PARK AVE & MADISON AVE

Welcome to a wild place: this block in 1609! Through the tabs below, discover the wildlife, Native American use, and landscape factors of this block's original ecology, as reconstructed by the Mannahatta Project. You can also explore the block today and sponsor the Mannahatta Project into the future.

Wildlife   Lenape   Landscape   Modern Day   Support This Block

Find out what plants and animals might have lived in this block in September 1609. Click on the common name to see that species in the center of the Muir web; click on the scientific name to learn more about the ecology of the species.

Mammals   Birds   Reptiles   Amphibians   Fish   Plants

### Common Name

Meadow Vole  
White-footed Mouse  
Deer Mouse

### Scientific Name

*Microtus pennsylvanicus*  
*Peromyscus leucopus*  
*Peromyscus maniculatus*

### Probability

