# NATURAL RESOURCE INVENTORIES

### **GIS for Local Level Mapping**



### **GIS Data Considerations**

### Public on-line Mappers

2

AGENDA

### **3 Customized On-line Maps**

### GIS DATA CONSIDERATIONS

SCALE	DATE	SOURCE	ACCURACY		
Use caution when combining data from multiple	Note date and how conditions may have changed	Data may be created for a specific purpose	Check additional sources to find obvious errors		
multiple scales	changed	puipose	errors		

### GIS DATA TYPES

• Raster (pixels)



coastal sage scrub red shank chaparral northern mixed chaparral development water non-native grassland coast live oak

- Vector
  - Point
  - Line
  - Polygon



### Map scale is the ratio of a distance on the map to the actual distance on the ground.



# MAP SCALE EXAMPLES



1:100,000 scale

1:24,000 scale

# MAP SCALE EXAMPLES



2000 feet



N

### **The National Land Cover Database**

# 30-meter Resolution

Science for a changing world

#### EXPLANATION

NLCD 2006 class legend



**Figure 1.** The National Land Cover Database (NLCD) land cover layer is one of several primary and supplementary layers in NLCD 2006. NLCD 2006 is the most recent 30-meter, seamless, wall-to-wall land cover database for the conterminous United States.





#### LAND COVER

#### Natural Land Cover Types



Red maple-swamp white oak swamp

Rich shrub fen

### NYSGIS CLEARING-HOUSE

- High Resolution Imagery
- Pixel size =
  1 foot



# ON-LINE MAPPERS

# NYS DEC Environmental Resources Mapper

- Designed to help prepare SEQR Environmental Assessment Forms
- Focus on resources regulated by the NYS Dept. of Environmental Conservation



EW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

http://www.dec.ny.gov/gis/erm/

### ENVIRONMENTAL MAPPER

Search

Select Layers

Explore

#### NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

#### **Environmental Resource Mapper**

Search					
Search by Location					
Fairgrounds Rd, Prattsburgh, New York, 14873					
search clear					
✓ Address					
Municipalities					
Place Names					
Counties					
Zip Codes					

Tools
Layers and Legend
Other Wetland Layers
Reference Layers
Tell Me More
Need A Permit?
Contacts

*
🔲 🗯 Unique Geological Features
— Waterbody Classifications for Rivers/Streams
Waterbody Classifications for Lakes
State Regulated Freshwater Wetlands
State Regulated Wetland Checkzone
Significant Natural Communities
Natural Communities Near This Location

**Rare Plants or Animals** 



#### **Environmental Resource Mapper**

#### **Other Wetland Layers**

- National Wetands Inventory
  - Estuarine and Marine Deepwater
  - Estuarine and Marine Wetland
  - Freshwater Emergent Wetland
  - Freshwater Forested/Shrub Wetland
  - Freshwater Pond
  - Lake

Other

Riverine







#### **Reference Layers**





#### NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

#### Environmental Resource Mapper

Base Map: Topographical 🗸 Using this map



Rare Plants or Animals



# USDA Web Soil Survey

- Soils data for large or small areas
- Map soil characteristics:
  - Drainage capabilities
  - Shallow bedrock
  - Agricultural suitability

https://websoilsurvey.sc.egov.usda.gov



### USDA WEB SOIL SURVEY

### Zoom to Site

## Draw "Area of Interest"

# Map Soils





	Area of Interest (AOI) Soi	il Map Soil (	Data Explorer Do
	Search	Clear Search 2	Soil Map
	Basic Search Enter keywords Advanced Search Map Unit Legend	Clear Search	
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ch	Chenango channery silt loam, fan	71.2	49.5%
Ed	Edwards muck	6.1	4.2%
HrB	Howard-Madrid complex, undulating	12.0	8.3%
HrC	Howard-Madrid complex, rolling	10.7	7.4%





#### Ch—Chenango channery silt loam, fan Map Unit Setting

National map unit symbol: 9wrl Mean annual precipitation: 31 to 39 inches Mean annual air temperature: 43 to 48 degrees F Frost-free period: 110 to 155 days Farmland classification: All areas are prime farmland

#### **Properties and qualities**

*Slope:* 3 to 8 percent *Depth to restrictive feature:* More than 80 inches *Natural drainage class:* Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr) Depth to water table: About 36 to 72 inches

Frequency of flooding: Rare Frequency of ponding: None

Calcium carbonate, maximum in profile: 1 percent Available water storage in profile: Low (about 5.9 inches)



### USGS STREAM STATS

Search by Address Select State or Region

Delineate Study Area





SELECT A STATE / REGION New York @ ~

#### IDENTIFY A STUDY AREA >

Step 3: Use your mouse or finger to click or tap a blue stream cell on the map

StreamState

9 Delineate





Basin Delineated

Step 5: Your delineation is complete. You can now clear, edit, or download your basin, or choose a state or regional study specific function (if available). Click **continue** when you are ready.





# CUSTOMIZED ON-LINE MAPPING

#### Welcome to the Town of Victor GIS Layer Map





OK

# DATA SOURCES

## State / U.S.

- Streams
- Wetlands
- Flood zones
- Aerial photos
- Roads
- Trails

### County

- Parcels
- Contours /
  - Steep Slopes
- Election
  Districts

### Local

- Zoning
- Conservation
  - Easements
- Water / Sewer
- Stormwater
  Outfalls
- Historic Sites
- Trails

## I D E N T I F Y R E S O U R C E S

- Streams
- Wetlands
- Steep Slopes
- Stormwater
  Outfalls
- Historic Sites
- Easements
- Trails

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interv	(1 of 6)	
A NOR AND		
	ALTRIBUTE	PEMIE
	AGM_CODE	
	WETLAND_TY	Freshwater Emergent Wetland
S STANDING	ACRES	0.48
	DECODE	<u>More info</u>
A CARLA	Zoom to	***

### Collect point data in the field



O PIPEL IN	
1 of 6)	
OUTFALL_RECON_POINTS: D	95
Name	D95
ABNORMAL_VEG	
COLOR	
DEPOSITS_STAINS	
FLOW_DESCRIP	
FLOW_PRESENT	NO
CLOSED_PIPE_MATERIAL	EARTHEN
PIPE_BENTHIC_GROWTH	
CLOSED_PIPE_CONFIG	
POOR_POOL_QUAL	
TYPE	OPEN DRAINAGE
CLOSED_PIPE_DIMENSIONS	
LAND USE	SUBURBAN
Zoom to	

### Upload CAD files or digitize paper maps



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### QUESTIONS

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## WETLAND DELINEATION, PERMITTING AND MITIGATION

#### USACE 1987 WETLAND DELINEATION MANUAL AND THE 2012 REGIONAL SUPPLEMENT MANUALS



Manuals provide wetland delineation methods, criteria, and field indicators

#### WHAT IS A WETLAND DELINEATION?

A wetland delineation identifies location and jurisdictional boundaries of wetlands, streams, and other jurisdictional Waters as required under Federal and State regulatory guidelines.



# Step 1: Desktop Review

Gather maps and other information pertinent to wetland/stream presence

- USFWS National Wetland Inventory Mapping
- NYSDEC Environmental Resource Mapper (ERM)
  website
- Mapped Soils Information
  - USDA Natural Resource Conservation Service County Soils Surveys
  - National Hydric Soils List
- USGS 7.5-Minute Topographic Quadrangles
- Aerial Photography
- FEMA 100-Year Floodzones Maps

Wetland presence/absence is always verified by a **SITE VISIT** completed by a wetland professional

#### **STEP 2: WETLAND DELINEATION FIELD PROCEDURES**



#### Vegetation/Plant Communities Hydric Soils & Site Hydrology

**GPS Survey of Boundaries** Data Forms & Photographs

### STEP 3: WETLAND DELINEATION REPORT



DELINEATION BOUNDARIES & MAPPING

#### Includes:

- Summary of Background Review
- Wetland Delineation Results
- Wetland and stream acreages
- Delineation Survey Map
- Data Forms
- Site Photographs
- Other pertinent maps and information



#### DELINEATION REPORT

# Step 4: Joint Permit Application

#### Submitting a JPA Request in NYS

- Protected Species Reviews
- Historic/Archaeological Reviews
- SEQRA Application Form
- Project Plans
- Other Information, as required by permit conditions



### **STEP 4: JOINT PERMIT APPLICATION**

#### Federal Permits - NY

- USACE Nationwide Permits
- USACE Individual Permit (IP)
- USCG Section 10 Navigable Waters
  Permit





#### **NY State Permits**

- NYSDEC Article 24 Freshwater Wetlands Permit
- NYSDEC Article 15 Protection of Waters Permit
- NYSDEC Individual 401 Quality Certification
- DOS Coastal Zone Management Permit
- NYSDEC Article 34 Coastal Erosion Permit

#### NYSDEC AND USACE REGULATORY REGIONS IN NEW YORK STATE



### **STEP 5: MITIGATION**

	Black River Buffalo-Eighteen Mile Creek Conewango-Pennsylvania River Irondequoit-Ninemile Creek Niagara River Lower Genesee River Oneida Lake Oswego River	\$98,022.00 \$125,000.00 \$98,022.00 \$105,000.00 \$125,000.00 \$98,022.00 \$98,022.00 \$98,022.00 \$98,022.00	Western St. I	Eastern St. Lawrence	River
1 6	Eastern St. Lawrence River Western St. Lawrence River	\$98,022. <sup>00</sup> \$98,022. <sup>00</sup>	- gring >	5 2	Vermont/ILF-Richelieu
Mitigation is required for ANY exceeding the designated the (commonly 1/10th of an acre)	impacts reshold	isfied through credit availability		Black River	
	Niagara River Lower Genesee	Irondequoit-Ninemile Cree	swego River Sk. Oneida Lake	and the	
Conewango Riv	falo-Eighteenmile Creek	Seneca-Finger Lakes	Region	the states	

# WETLAND MITIGATION

**Project Impacts** 

- Permanent conversions
- Permanent fill

NYSDEC requirements

Oversight

Invasive Species Treatment

5-10 years of Monitoring



### APPROVED SITE PLAN

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## QUESTIONS

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