Free Google Tools for Creating Interactive Mapping "Mashups"

Cary Chadwick
Emily Wilson

Tuesday, May 10, 2011
2pm

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Geospatial Training Program

Welcome to the CLEAR Webinar Series!

This is the fourth in the 2011 series

- Riparian Corridors, Now Online
- Affordable Housing, Now Online
- Rain Gardens, Now Online
- Google Maps Mashups, May 10
- Brownfields, June 14
- GPS & Smartphone Mapping, July 19
- Permeable Pavements for Stormwater Control, September 13
- Farm-friendly Plans and Regulations, October 18
- CLEAR Web Tools, November 8

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http://clear.uconn.edu

Suggestions? Email clear@uconn.edu

Center for Land Use Education and Research

CLEAR's Mission:

To provide information, education and assistance to land use decision makers in support of balancing growth and natural resource protection.

University of Connecticut
- College of Agriculture, Dept. of Extension
- College of Agriculture, Dept. of Natural Resources
- Connecticut Sea Grant

CLEAR Programs
- Connecticut NEMO
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- Geospatial Training Program
- Land Use Academy
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CLEAR's Geospatial Training Program

Hands-on Short Courses in Geospatial Technologies:

- Geographic Information System (GIS)
- Global Positioning System (GPS)
- "Earth browser" trainings (Google Maps, Google [illegible]

Mashup Training!
May 24th
Middlesex County
Extension Center
Haddam, CT

http://clear.uconn.edu/geospatial

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Webinar Agenda

1. Who's, Where's and What's
2. Introduction to Web Mapping Mashups
3. Techniques for Creating Interactive Web Maps
   - Google Maps My Maps
   - Google Fusion Tables
   - Google Earth
   - KML & the GIS User
4. Techniques for sharing data and web maps
5. Q& A and Helpful Resources

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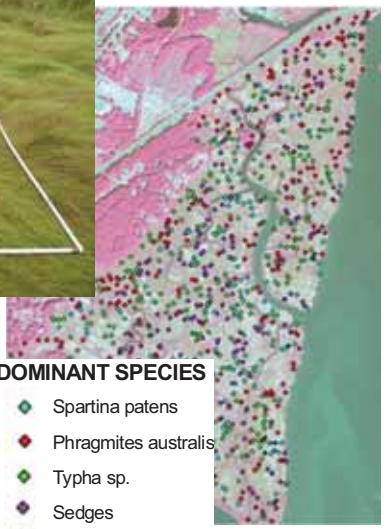
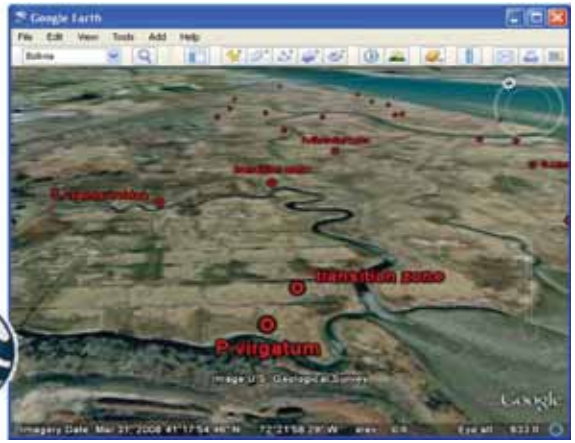
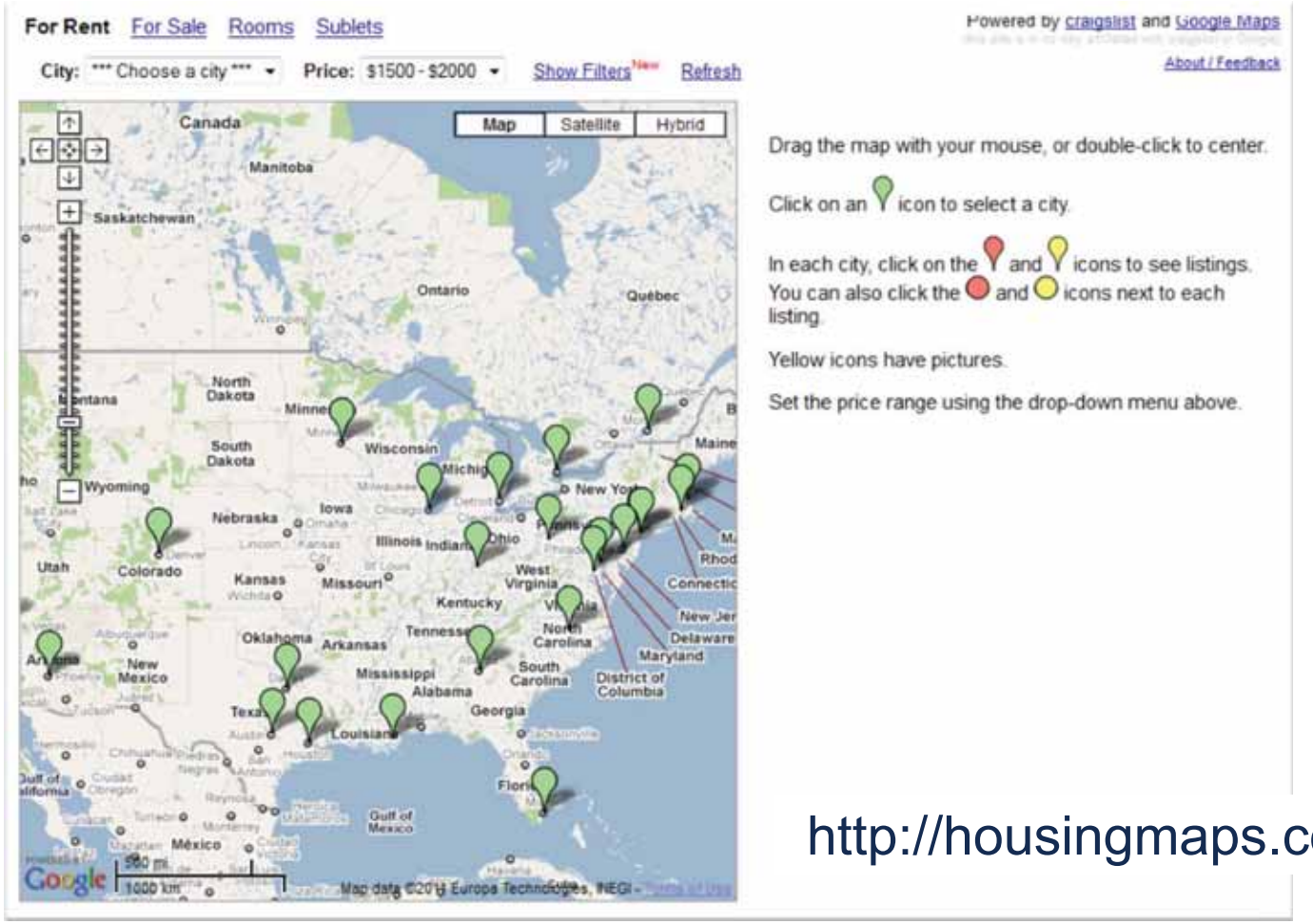
What is a Mashup Anyway?

Mashups combine separate, stand-alone technologies into a novel application, often functioning through an application programming interface (API) which facilitates communication between the technologies without modification of the source code.





The World's First Mapping Mashup



craigslist

+

Google maps

http://housingmaps.com

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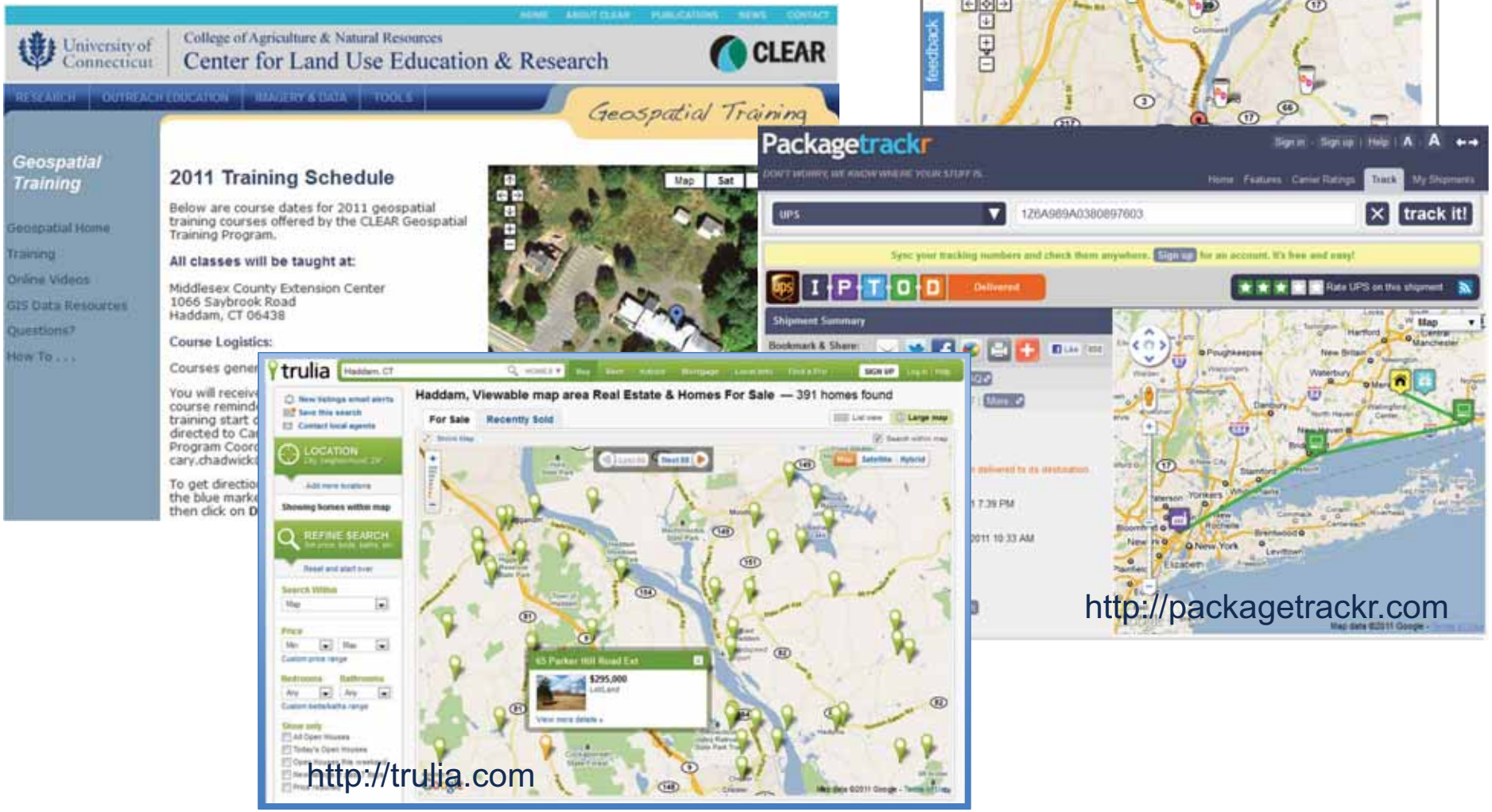
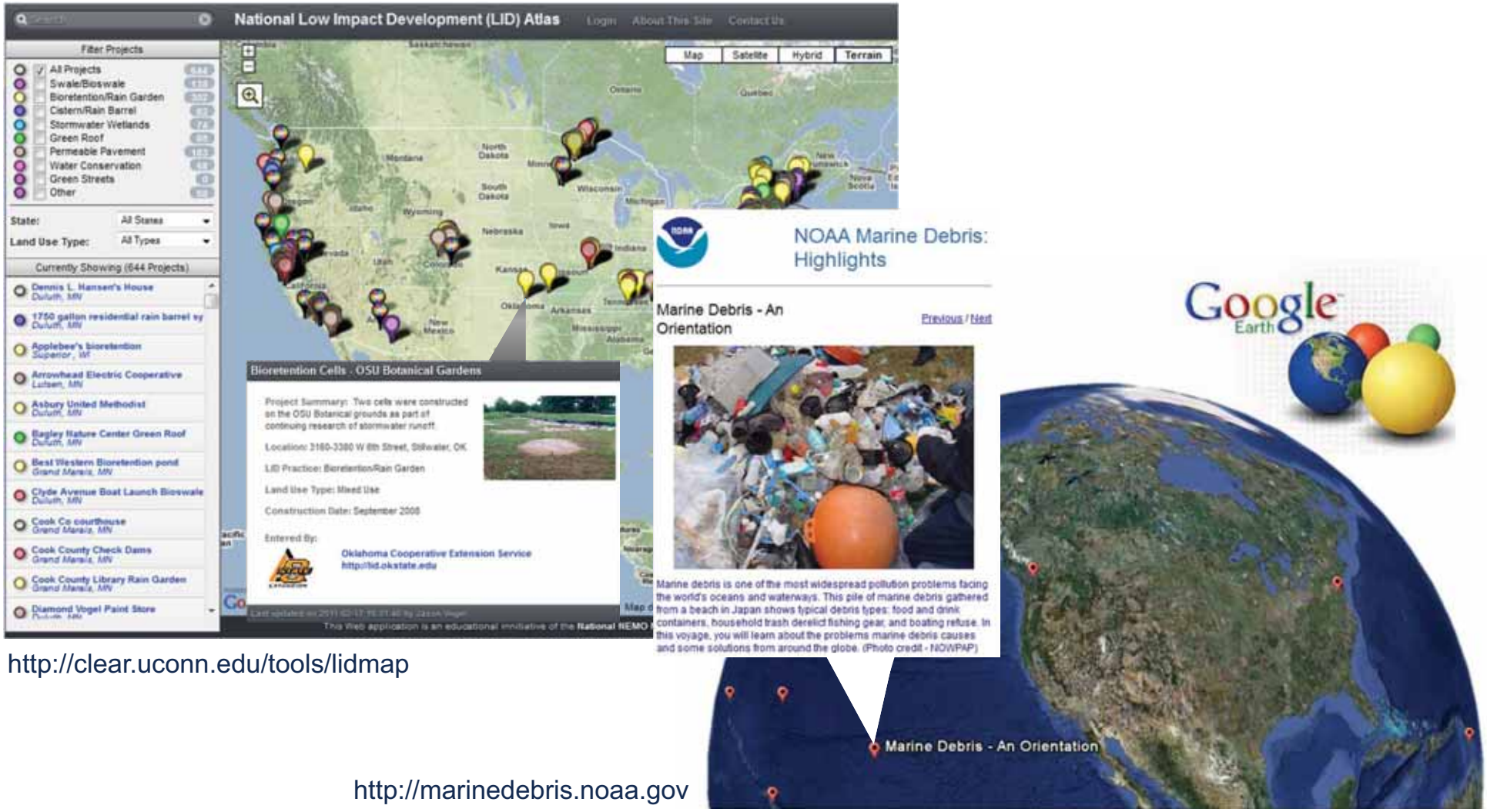
Examples of Mashups

Mashups Make Life Easier



Examples of Mashups

Mashups Educate Us



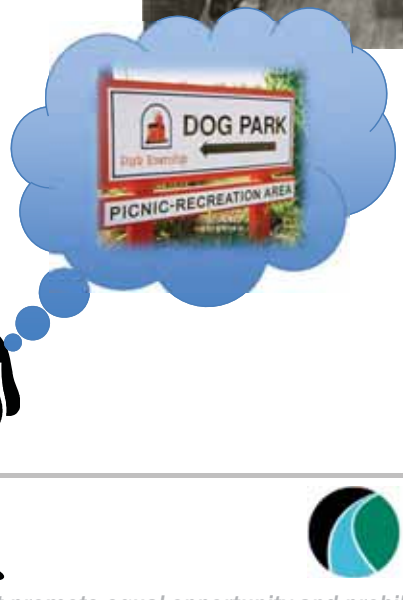
http://clear.uconn.edu/tools/lidmap

http://marinedebris.noaa.gov

Surveying Your Mashup Experience

✓ Poll Question 1:

Have You Ever Used a Mashup?



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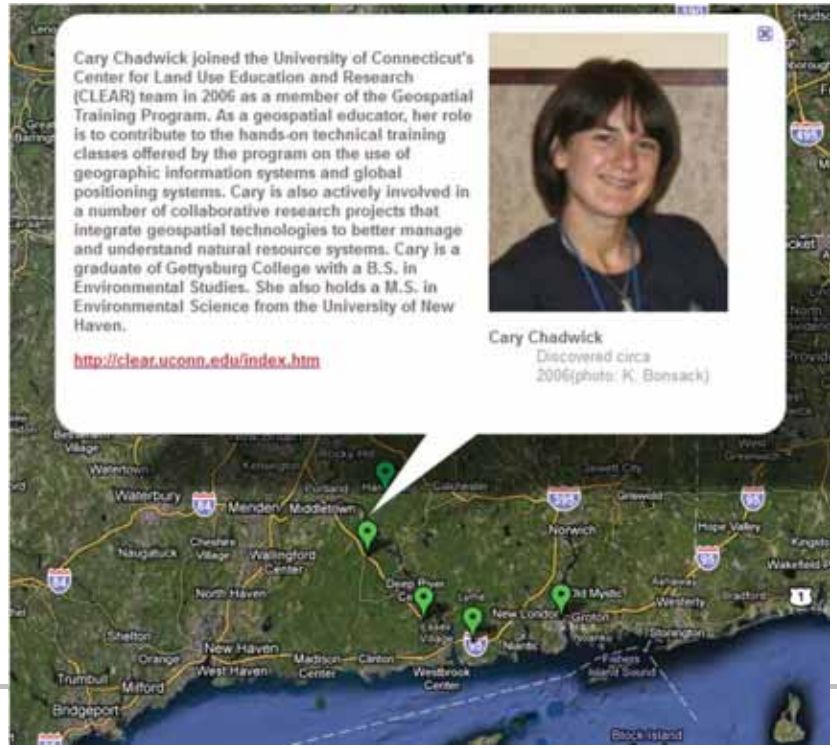
Surveying Your Mashup Experience

✓ Poll Question 2:

Have You Ever Created Your Own Mashup?



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The Mashup Scale of Difficulty

Rapid Mashup Development Tools

Basic Web Maps

Customized Data Layer Integration

Fully Customized Web Maps

Anyone can do it! — *Trending Toward the Techies*

Range of Techniques

Google Maps My Maps
Google Map Maker
Google Fusion Tables
MapBuilder
BatchGeo

Many More!

Google Earth
KML
API Development
Map Services
Mapplets
GeoRSS

Programming Mapping APIs, HTML, JavaScript, Database Integration

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- GeoRSS

- Programming Mapping APIs, HTML, JavaScript, Database Integration

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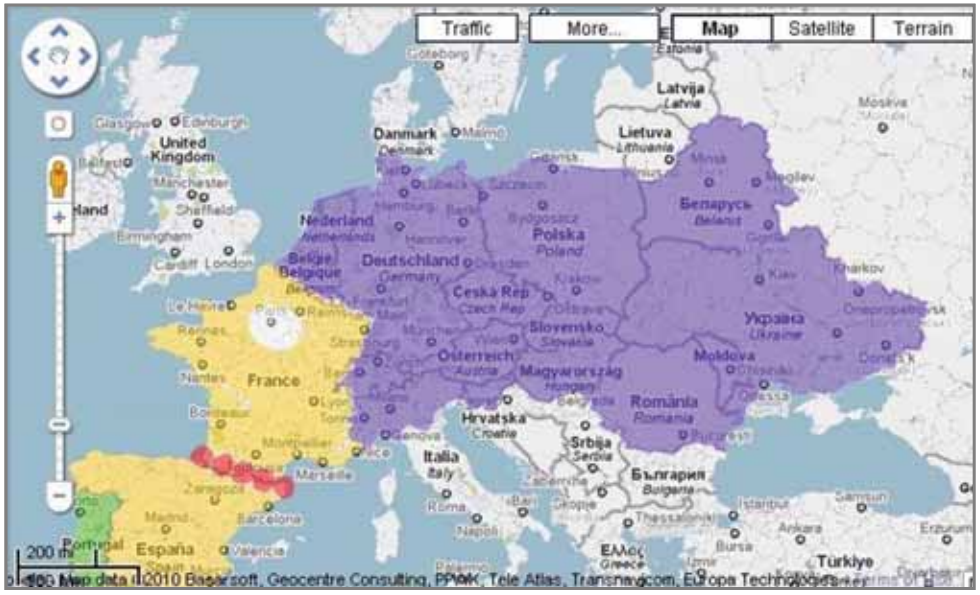
Why Use Google Tools?

Google Maps Earth

Google, Who?

- ❖ Google Maps is ubiquitous
- ❖ Google Maps is intuitive
- ❖ Google Maps is flexible
- ❖ Google Maps is resourceful
- ❖ Google Earth is pretty cool.



Micky Hulse

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Google Earth Vs. Google Maps

Google Earth

- 3D Globe
- Shows polar regions
- No login require to create files
- Can create KML and KMZ, import data from GPS receiver
- Google Sky, Moon, Mars and Ocean
- Wow factor? ★★★★★

http://earth.google.com/

Google Maps

- 2D Map (3D with Plug-in)
- Does not include polar regions
- Wow factor? ★★★★

http://maps.google.com/

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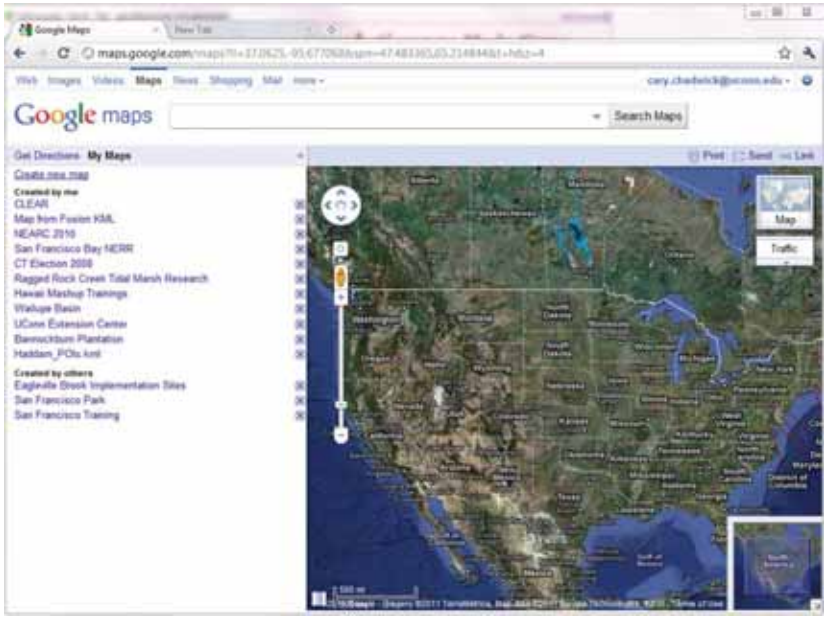
Google Maps My Maps

http://maps.google.com



- My Maps is embedded in Google Maps
- Free method for personalizing Google Maps
- WYSIWYG editor
- Allows a user to add data, import KML
- Create customized popup windows using plain text, rich text and HTML
- Add photos, videos and hyperlinks within information bubbles
- Collaborate with other map editors, email URL link to your Google Map, embed in website or blog

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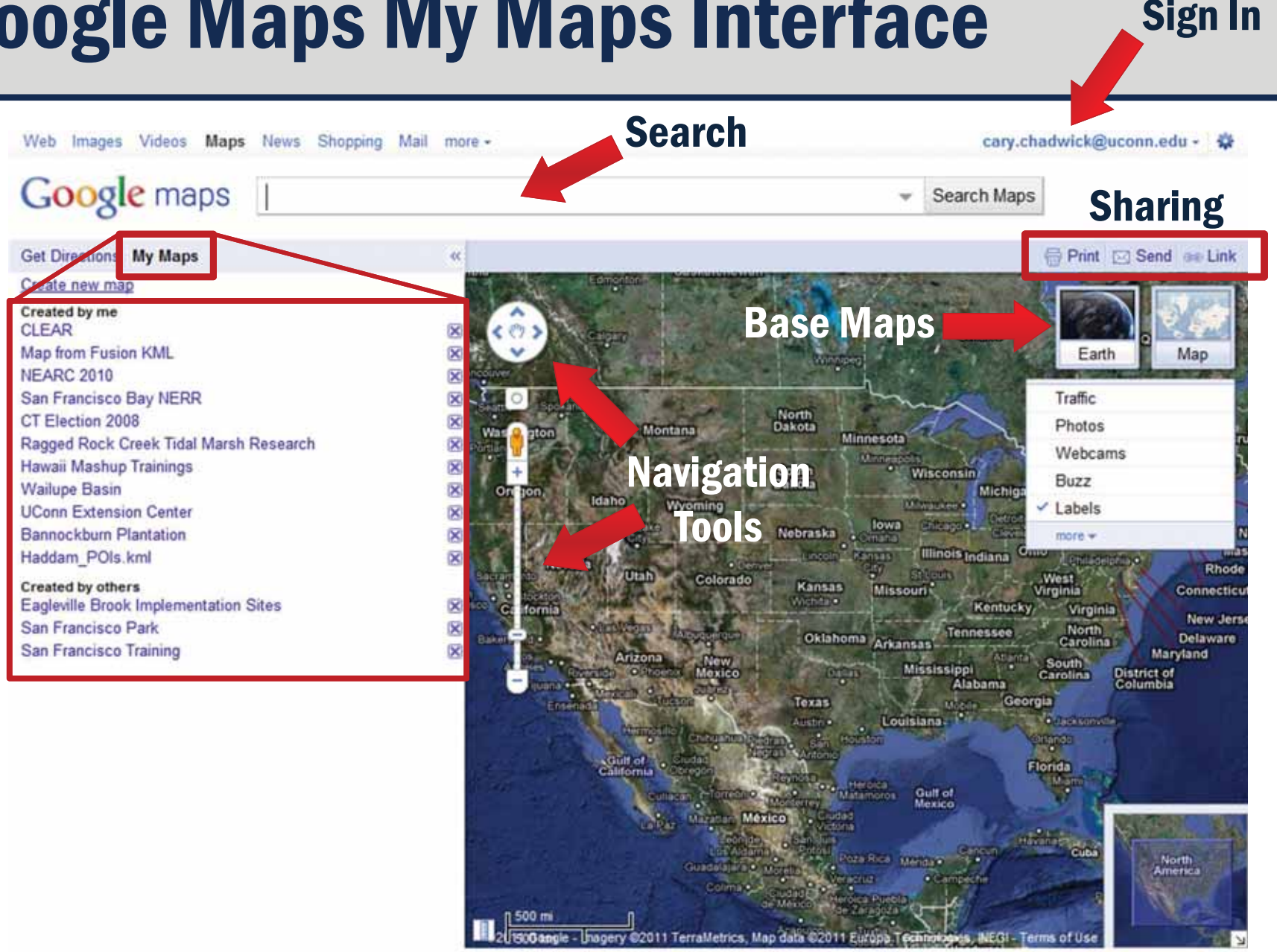
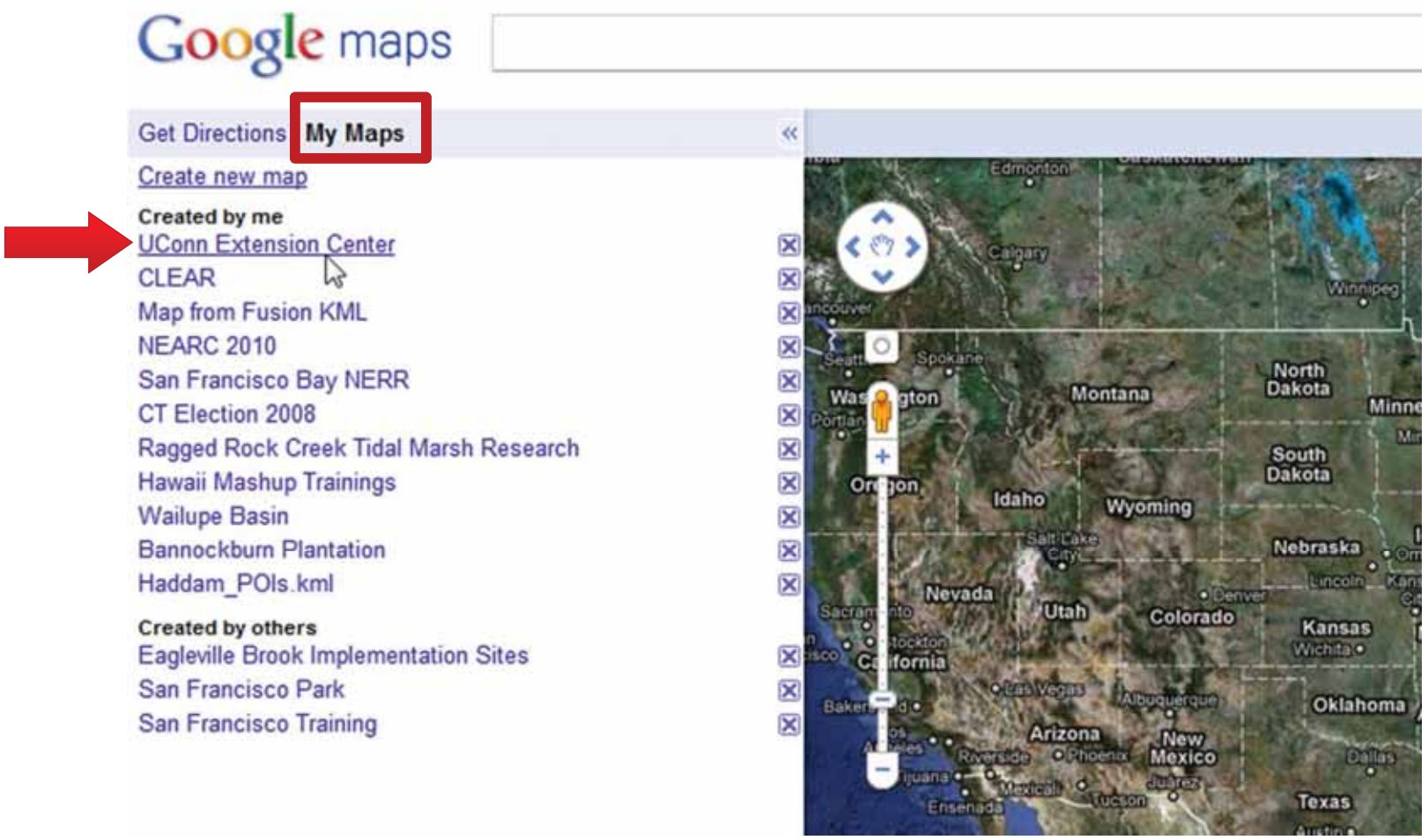
Google Maps My Maps Interface



Google Maps My Maps Edit Mode



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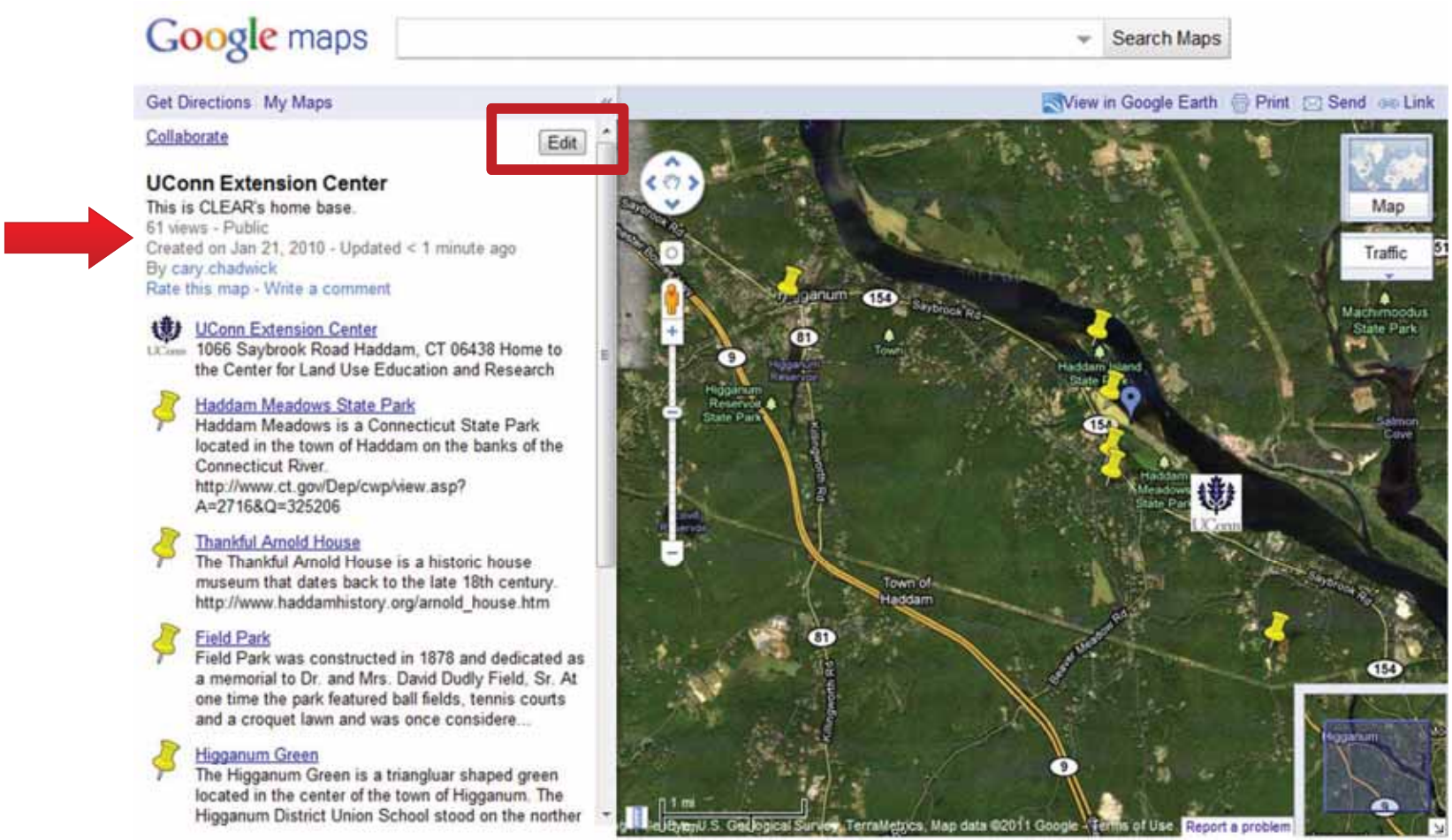
Google Maps My Maps Edit Mode



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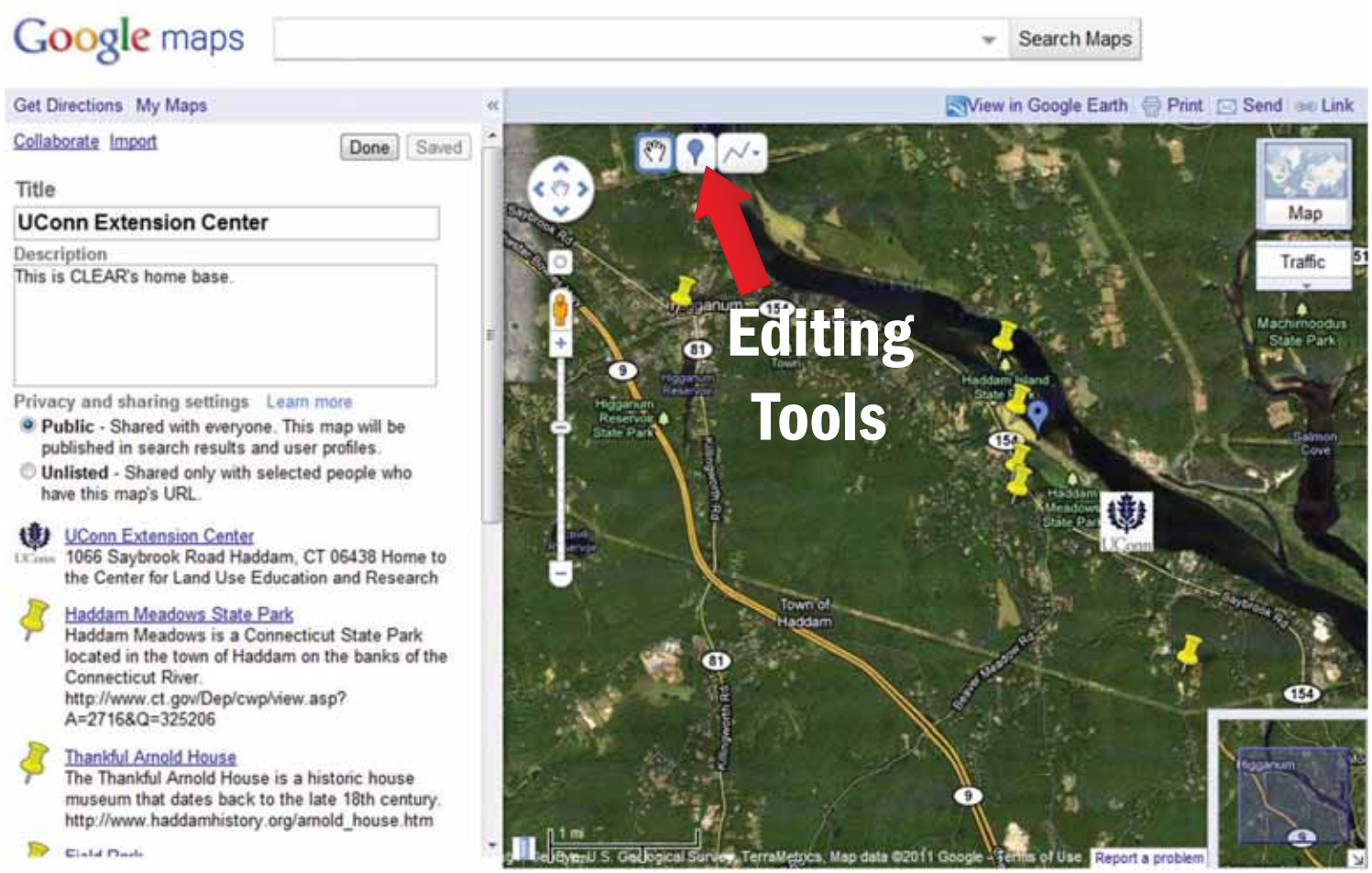
Google Maps My Maps Edit Mode



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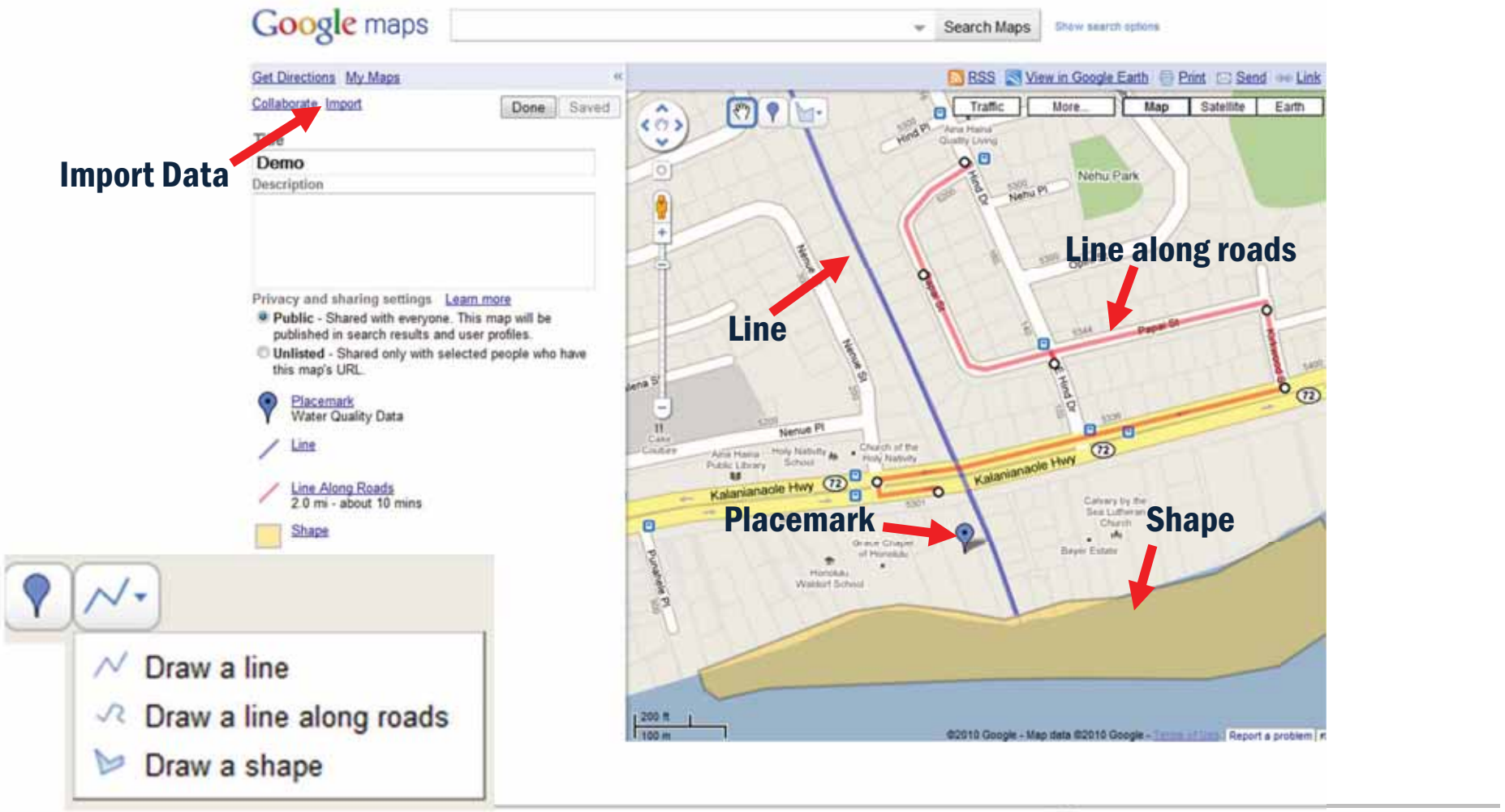
Adding Features to a My Map



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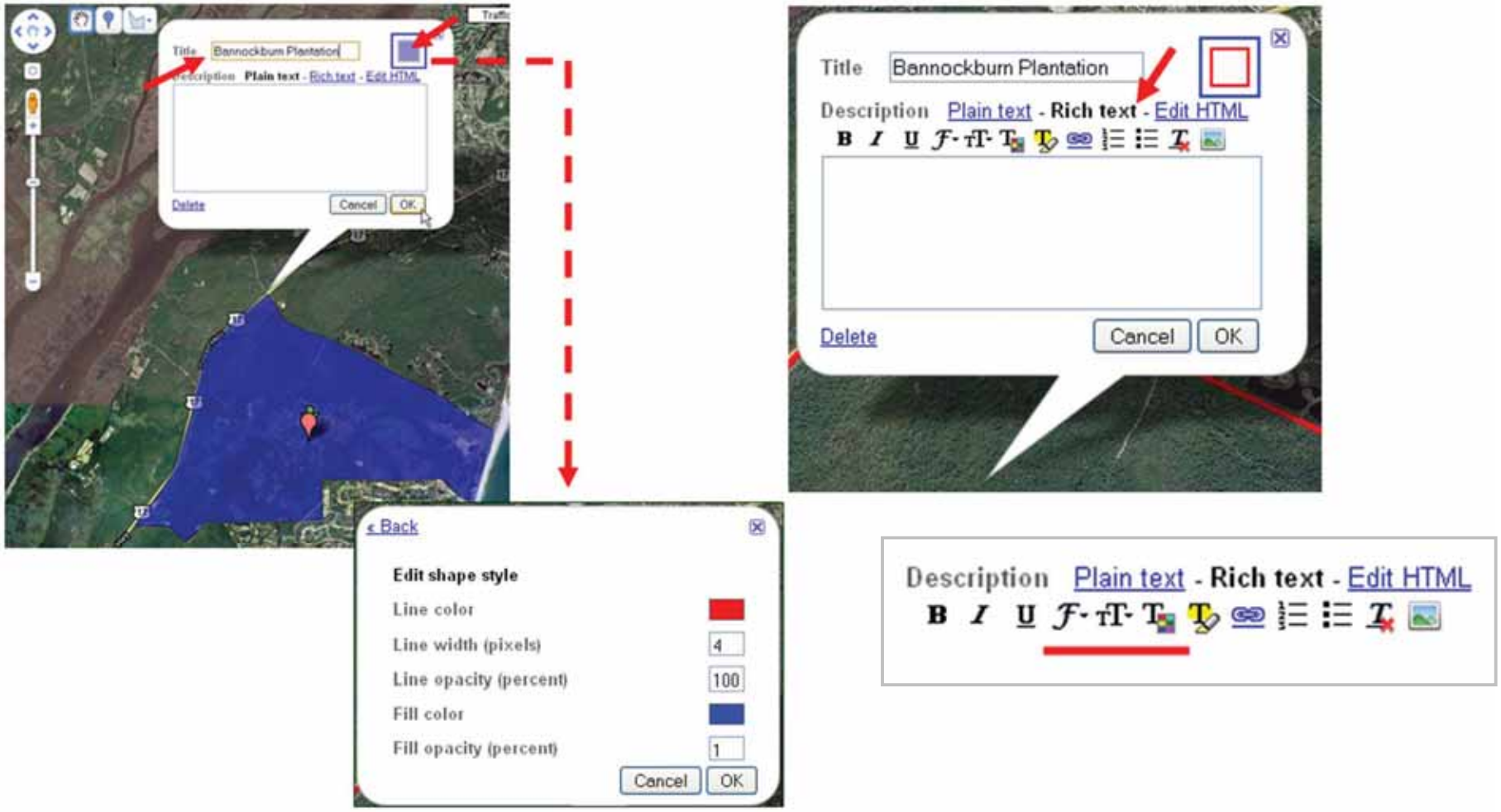
Editing a Feature



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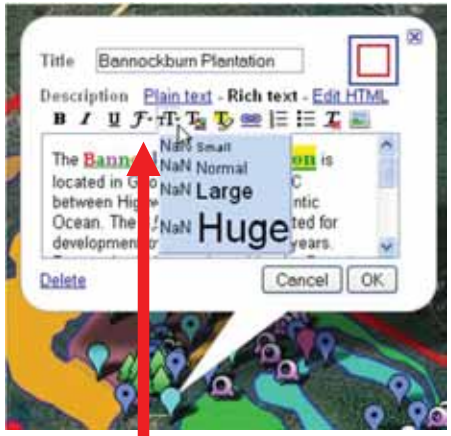
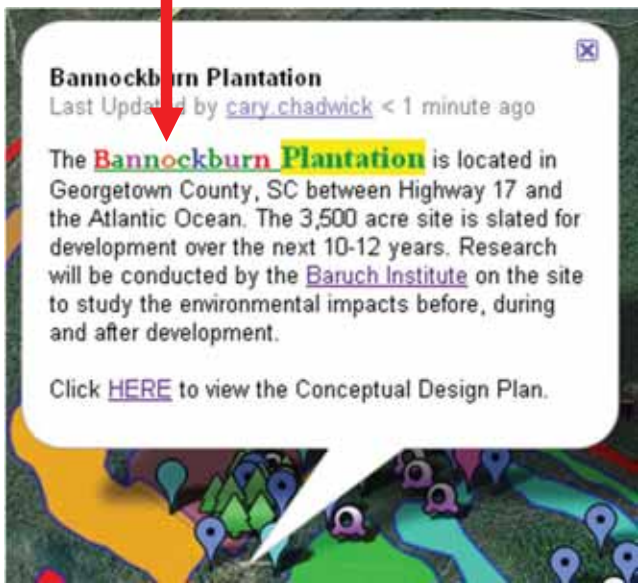
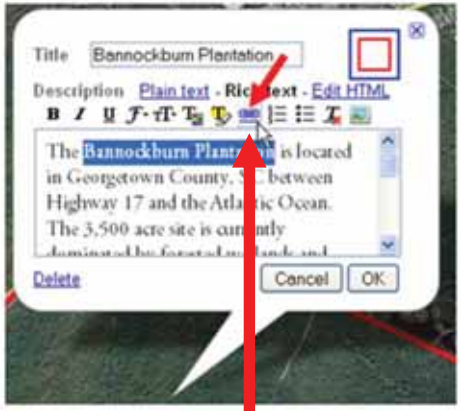
Using the Rich Text Format

Format Text

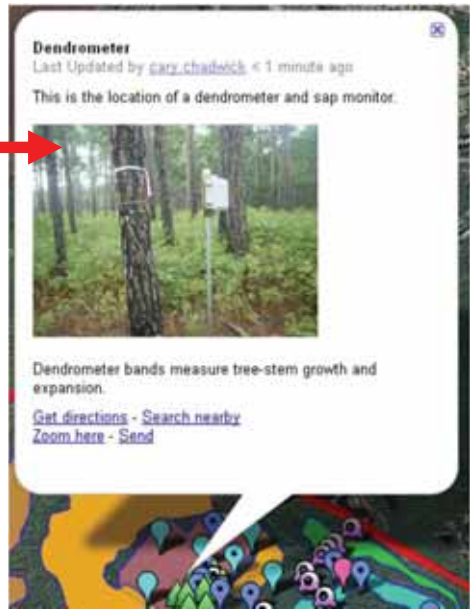




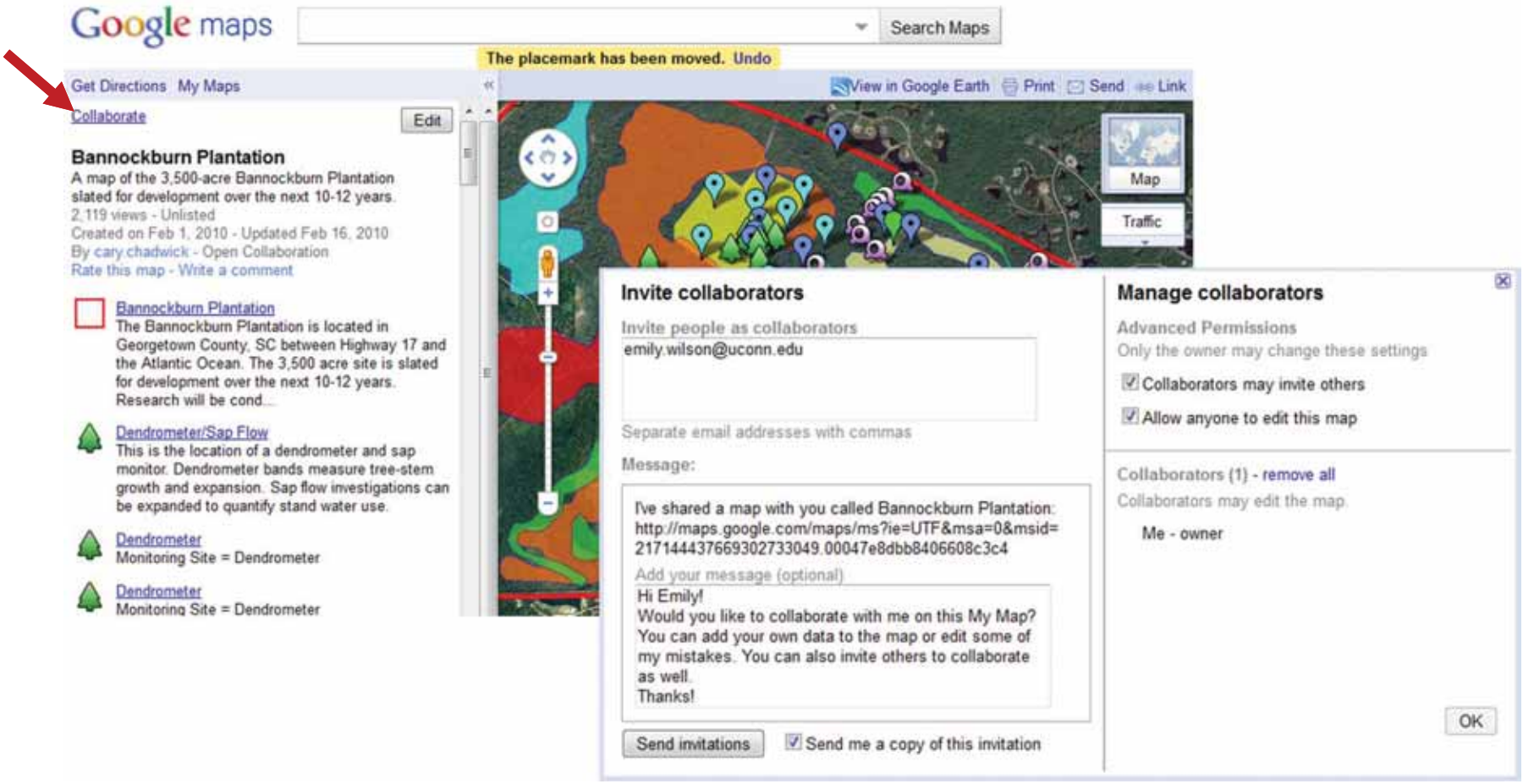
Insert Hyperlinks



Embed Photographs



Sharing and Collaborating



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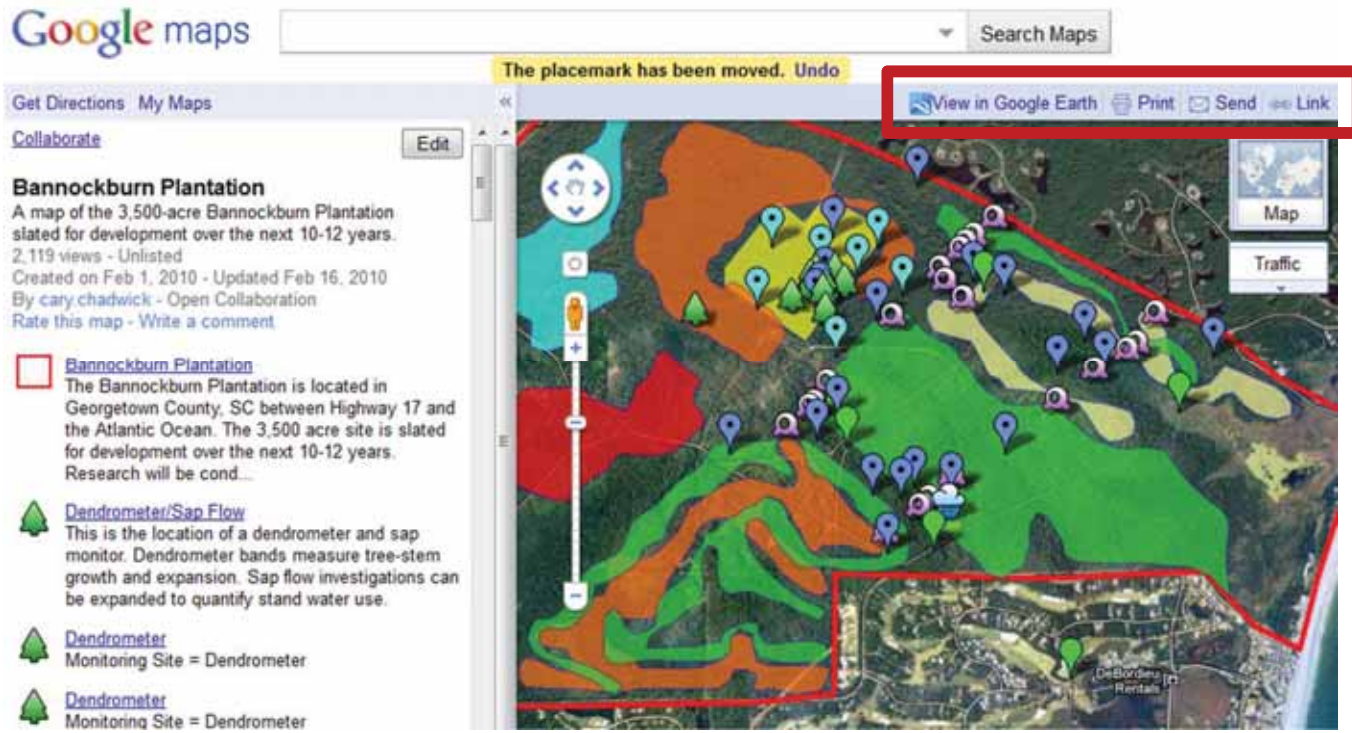
Sharing and Collaborating



KML
Print Map
Email
URL Link
Embed HTML

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Live Demo

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Google Maps My Maps Limitations

- You are limited to 1000 map features
- Maximum KML import = 10 MB
- All collaborators must have a Google Account
- Customization is somewhat limited
- Data is stored on Google servers
- Google-centric

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Google Maps My Maps Q&A

"Franklin's waiting for the Google 'Street View' camera car to drive by so he can moon it."

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Google Fusion Tables

Fusion Table Basics:

- Just graduated from Google Labs
- Cloud-based application
- Designed for data management and collaboration
- Offers data visualization tools including ability to map data in Google Maps and access HTML code to embed on third party websites
- Supports .csv, .xls, .xsls, .ods, Google spreadsheets, .KML files
- Quota of up to 250 MB per user (shared tables not included)

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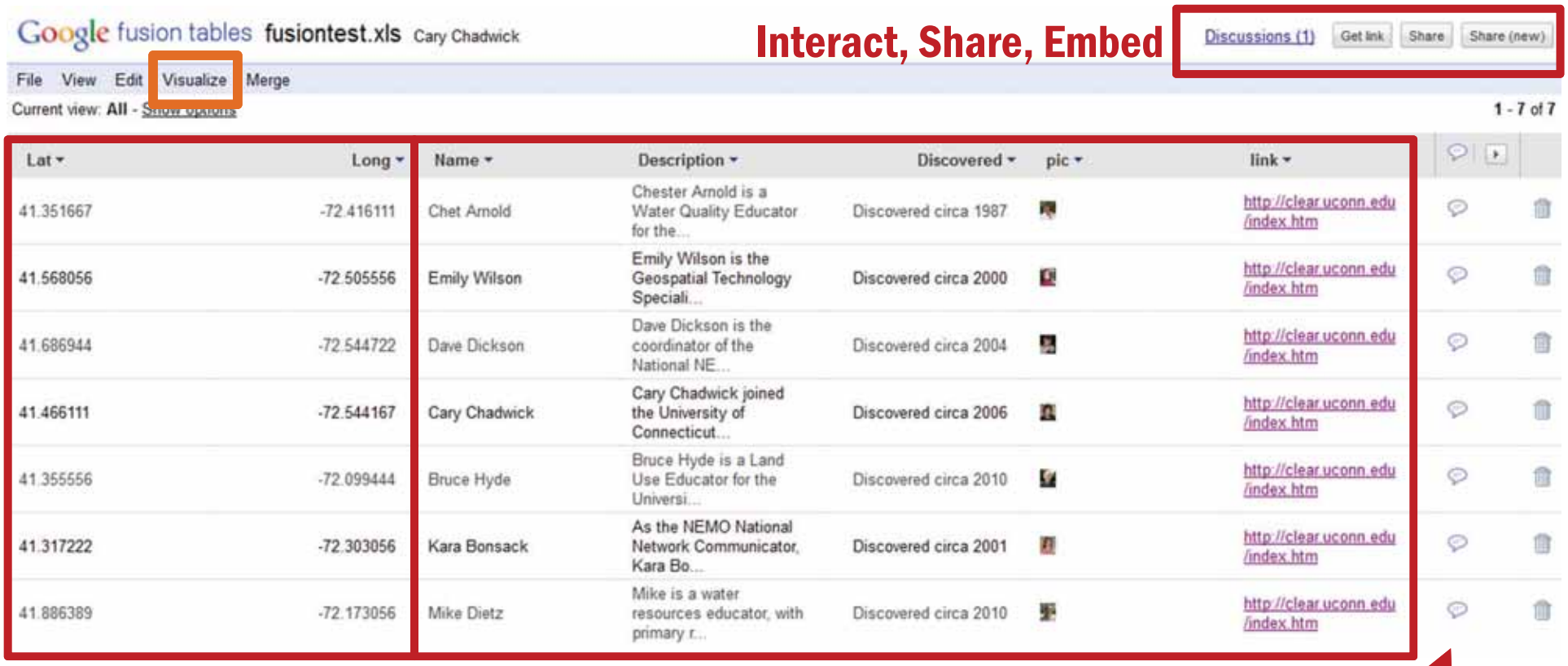
Google Fusion Tables



Lat	Long	Name	Description	Discovered	pic	link
41.351667	-72.416111	Chet Arnold	Chester Arnold is a Water Quality Educator for the...	Discovered circa 1987		http://clear.uconn.edu/index.htm
41.568056	-72.505556	Emily Wilson	Emily Wilson is the Geospatial Technology Speciali...	Discovered circa 2000		http://clear.uconn.edu/index.htm
41.686944	-72.544722	Dave Dickson	Dave Dickson is the coordinator of the National NE...	Discovered circa 2004		http://clear.uconn.edu/index.htm
41.466111	-72.544167	Cary Chadwick	Cary Chadwick joined the University of Connecticut...	Discovered circa 2006		http://clear.uconn.edu/index.htm
41.355556	-72.099444	Bruce Hyde	Bruce Hyde is a Land Use Educator for the Universi...	Discovered circa 2010		http://clear.uconn.edu/index.htm
41.317222	-72.303056	Kara Bonsack	As the NEMO National Network Communicator, Kara Bo...	Discovered circa 2001		http://clear.uconn.edu/index.htm
41.886389	-72.173056	Mike Dietz	Mike is a water resources educator, with primary r...	Discovered circa 2010		http://clear.uconn.edu/index.htm

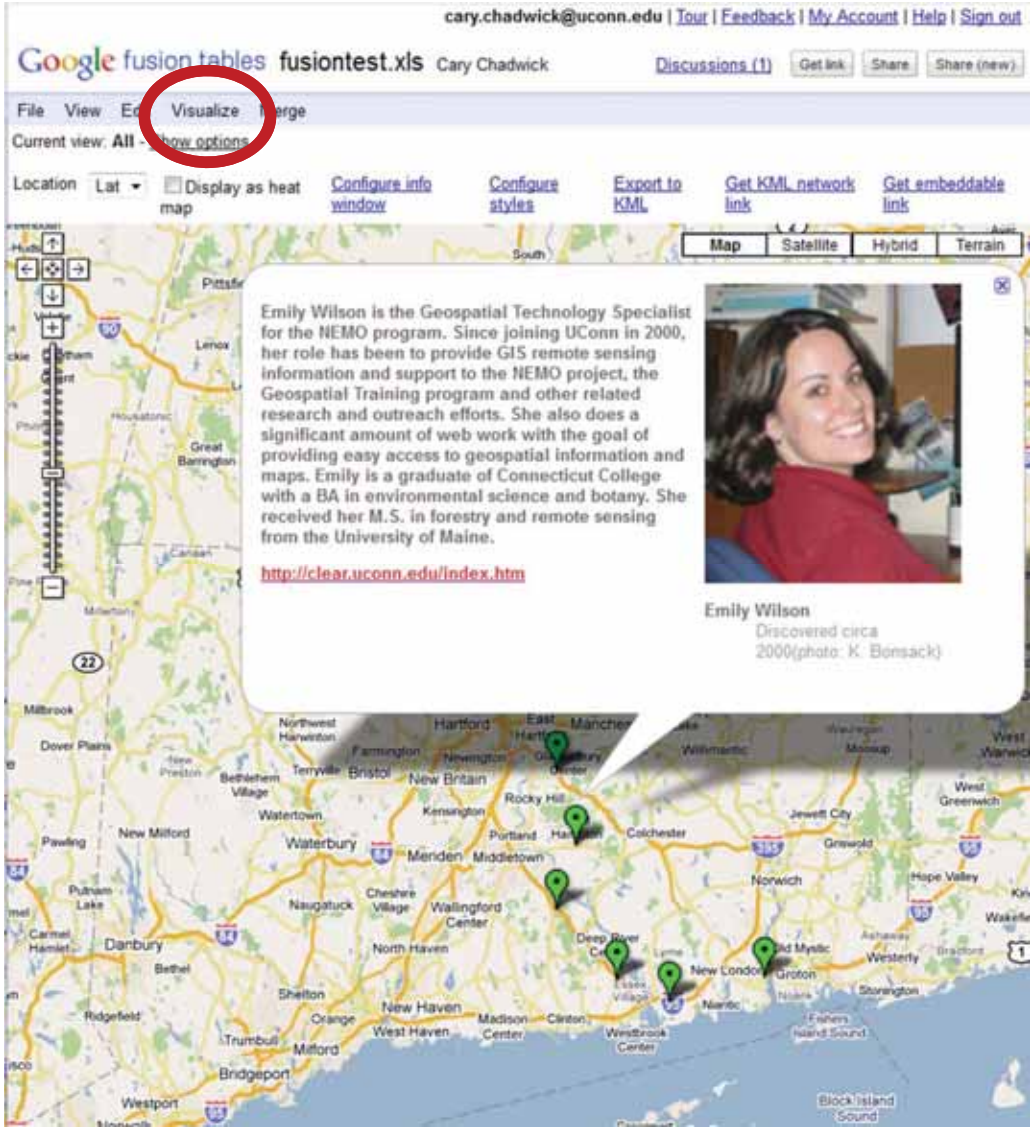
Geographic Properties

Additional Information

"Name" "Description"
"Discovered"
"Pic" – URL to photograph
"Link" – URL to web link

Comments

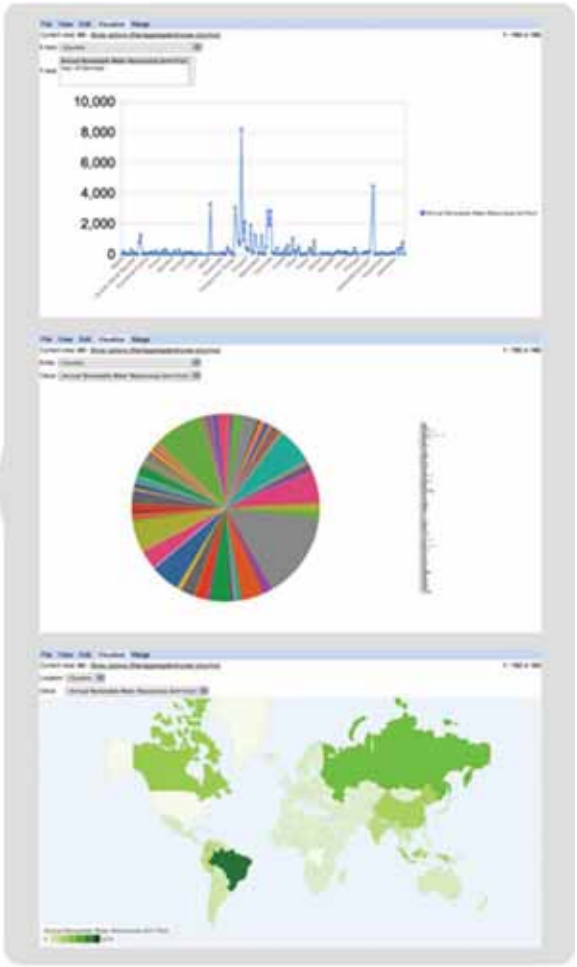
Google Fusion Tables



Additional Fusion Table Functions

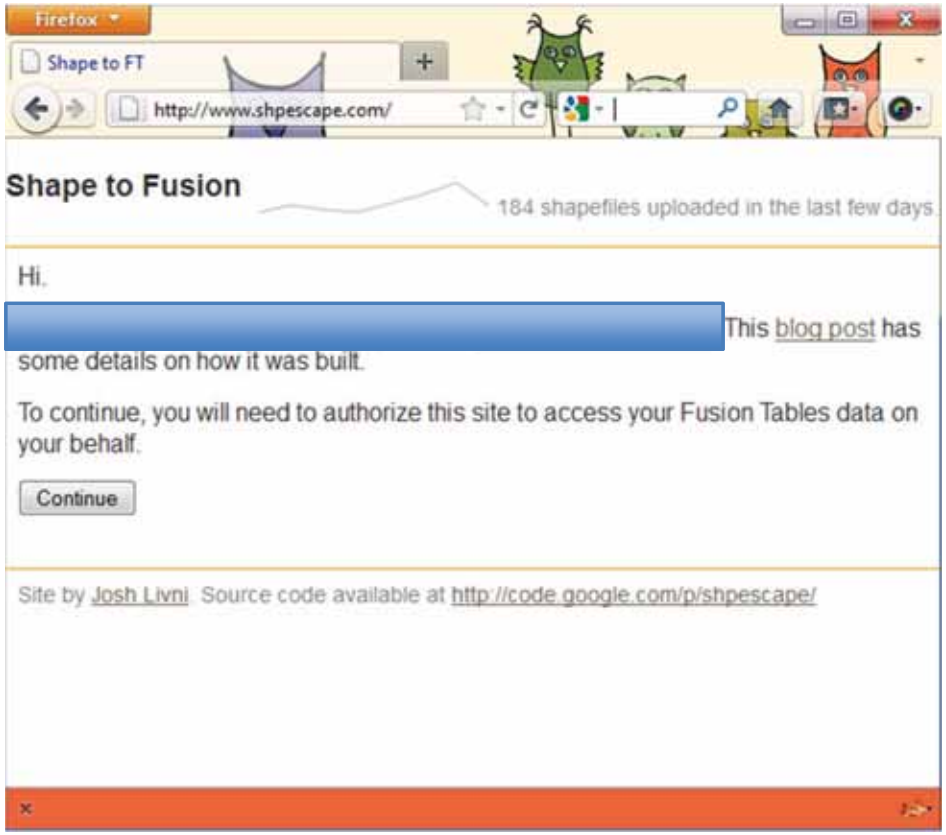
www.google.com/fusiontables

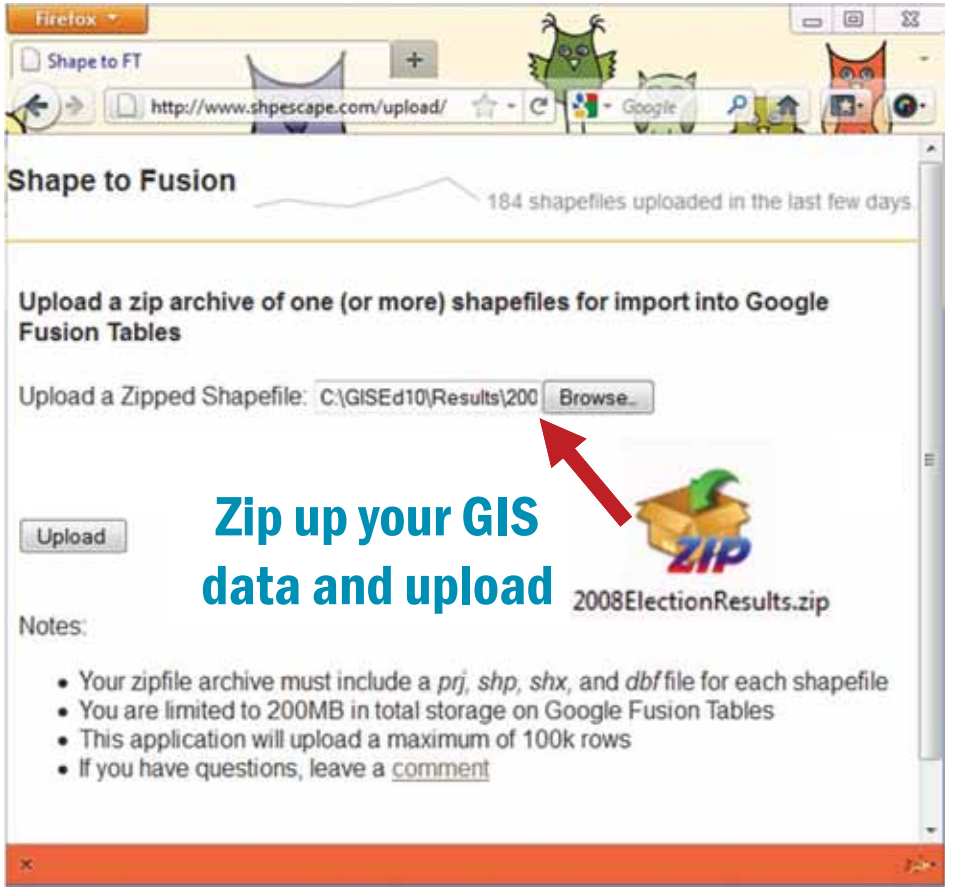
- Supports embeddable charts, graphs, maps, and timelines
- Configurable map styles and information windows
- Supports data filters and basic queries
- Data attribution and protection capabilities
- Integration of data from multiple sources or users
- Export to KML for sharing or viewing in Google Earth
- Embed map or access as a KML network link



- Public (searchable, embedded), Private or Collaborative Databases

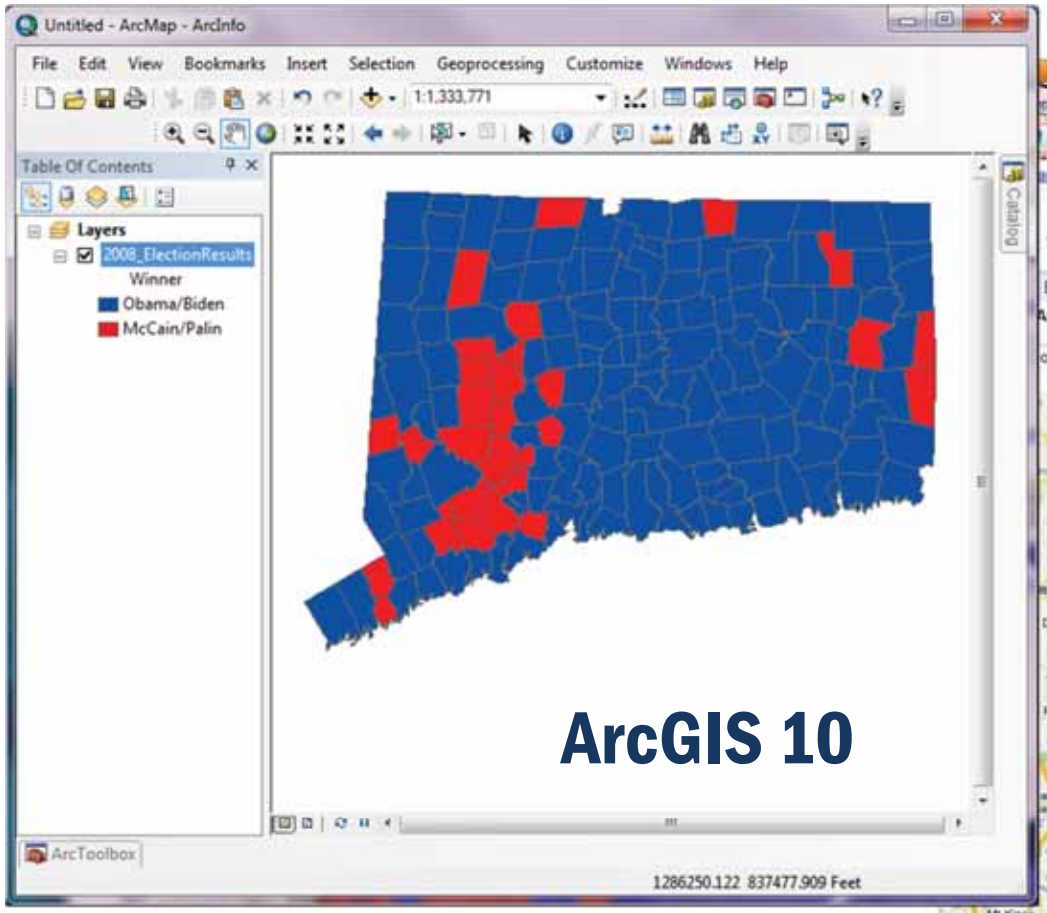
Google Fusion Tables for GIS Users

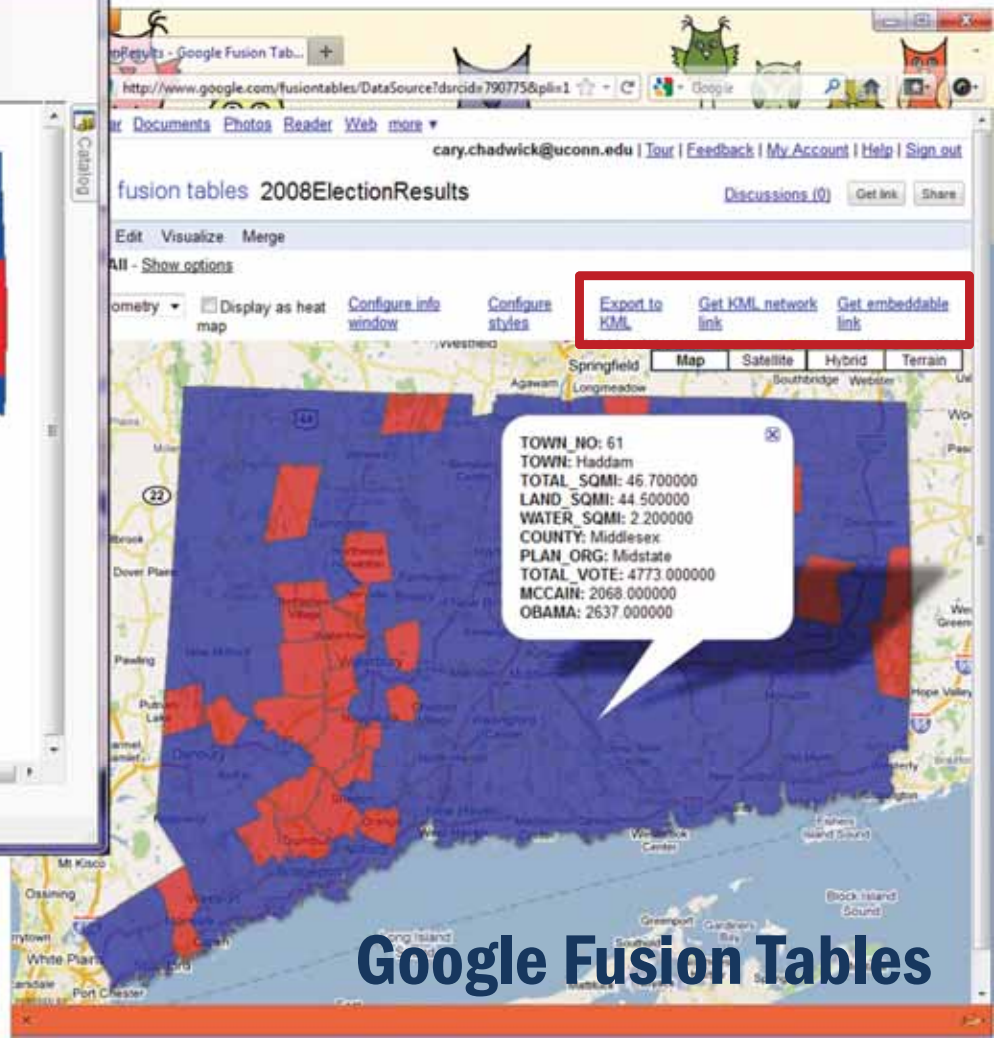




http://shpescape.com

Google Fusion Tables for GIS Users





http://shpescape.com

Google Fusion Tables Q & A

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Google Earth

- Desktop Application
- 3D Globe
- Shows polar regions
- No login require to create files
- Requires knowledge of HTML to customize features
- Can create KML and KMZ
- Can import GPS data directly from receiver
- Auxiliary data layers including historical imagery
- Google Sky, Moon, Mars and Ocean
- Wow factor? ★★★★★

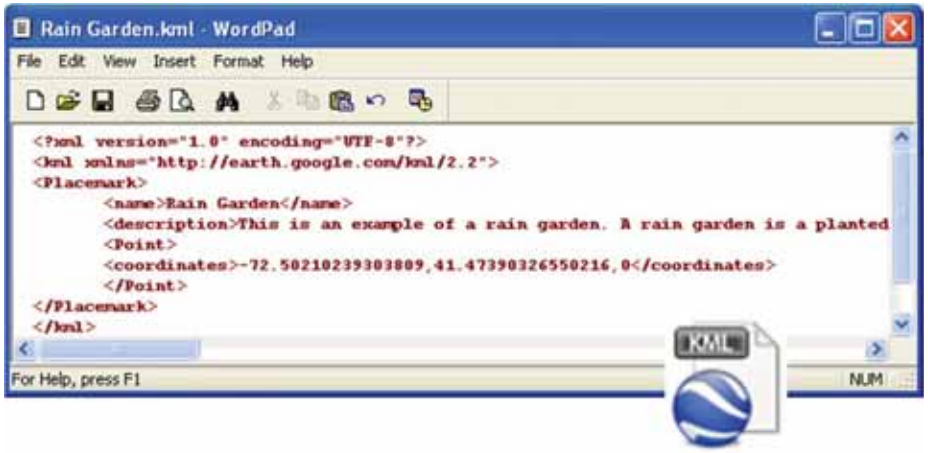
"OK, hon, I'm on Google Earth now...I see a parking spot! It's on Amsterdam, between 67th and 68th, left side!"

http://earth.google.com/

Surveying Your Mashup Experience

✓ Poll Question 3:

Do You Know How to Create KML?



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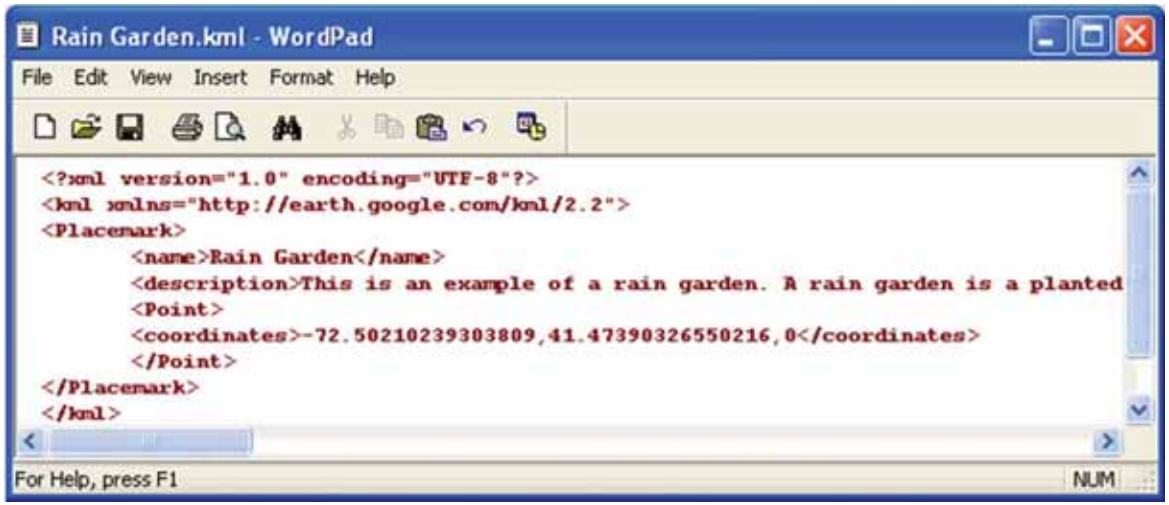
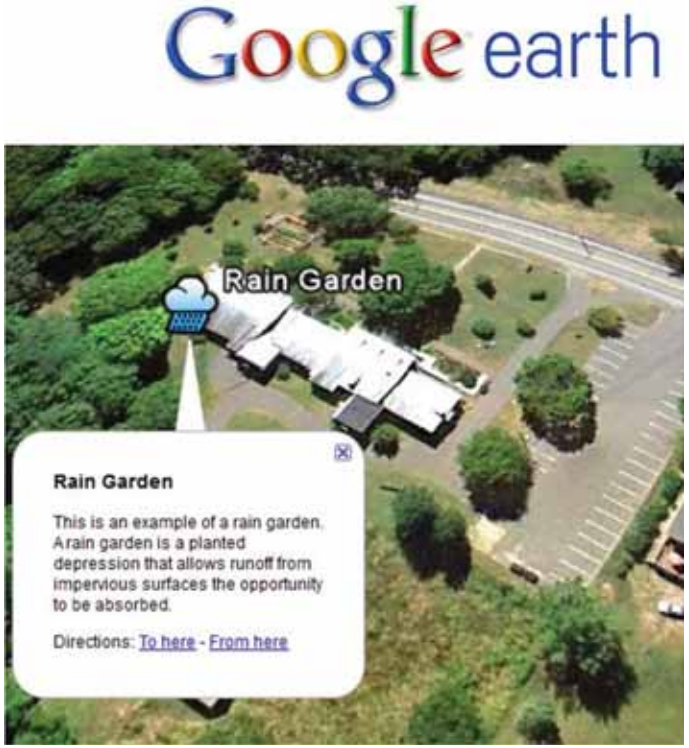
Keyhole Markup Language (KML)

KML is a file format used to display geographic information in Earth Browsers such as Google Earth and Google Maps.

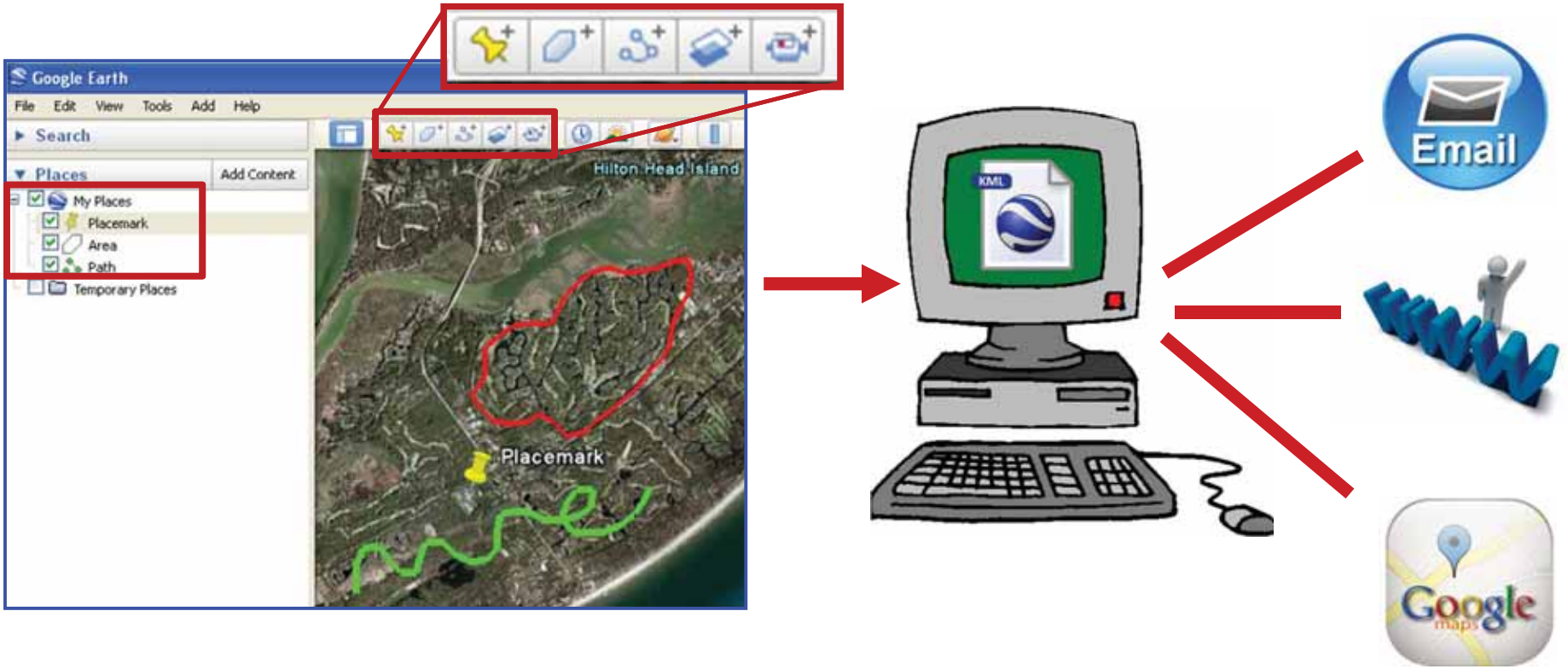


KML uses a simple tag-based structure with nested elements and attributes and is based on the XML standard



Creating and Sharing KML in Google Earth

Placemarks (points), Areas (polygons), Paths (lines) and Image Overlays can be created in Google Earth and saved to KML on your desktop and shared in a number of ways.



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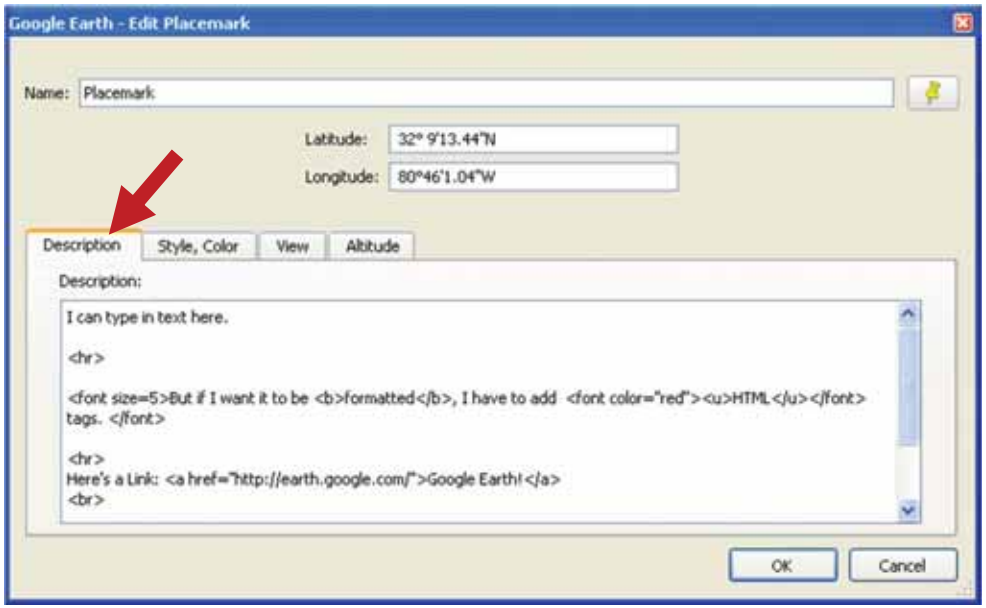
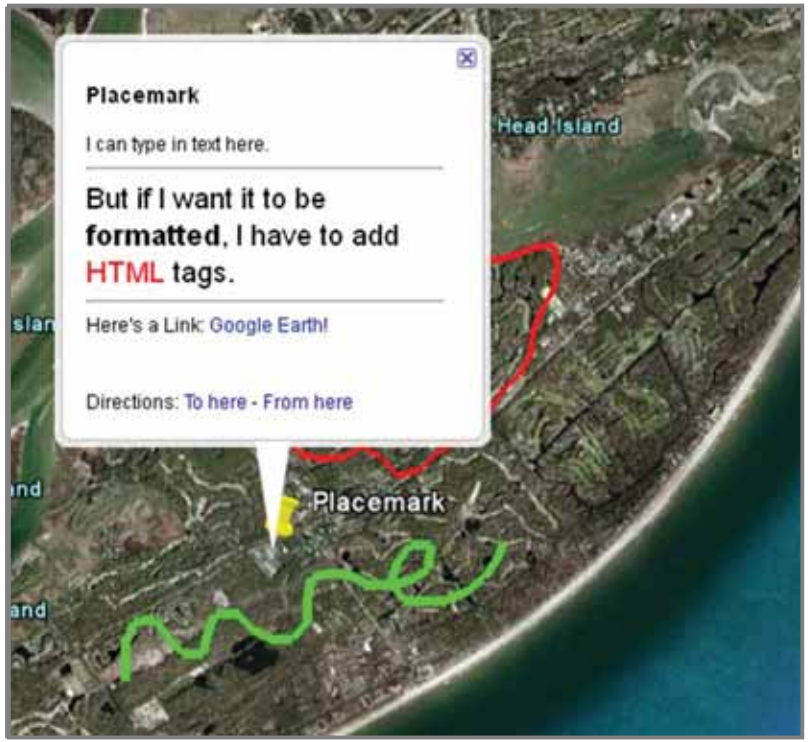
Formatting KML in Google Earth

Feature descriptions can be enriched by using standard HTML tags.





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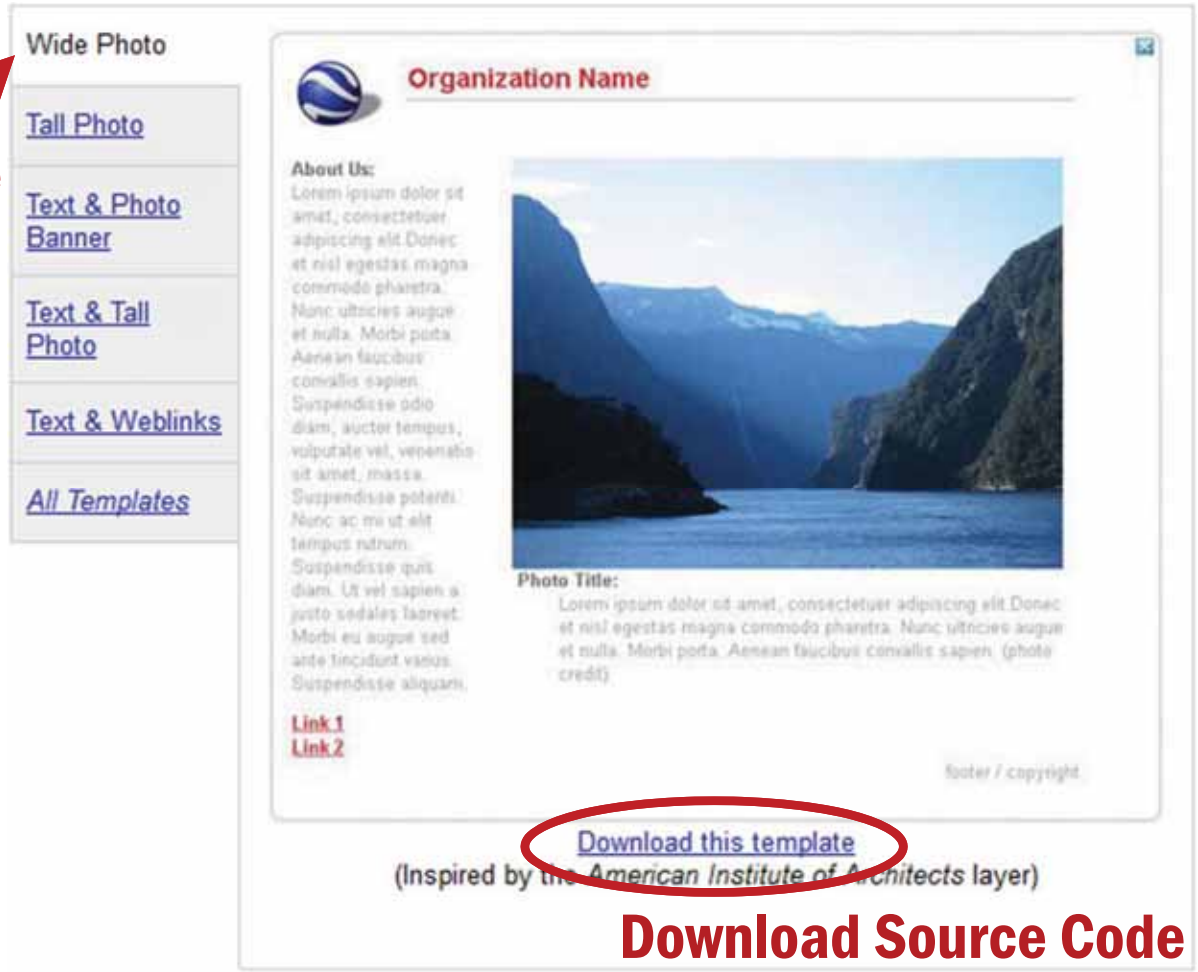
Customizing Pop Up Windows

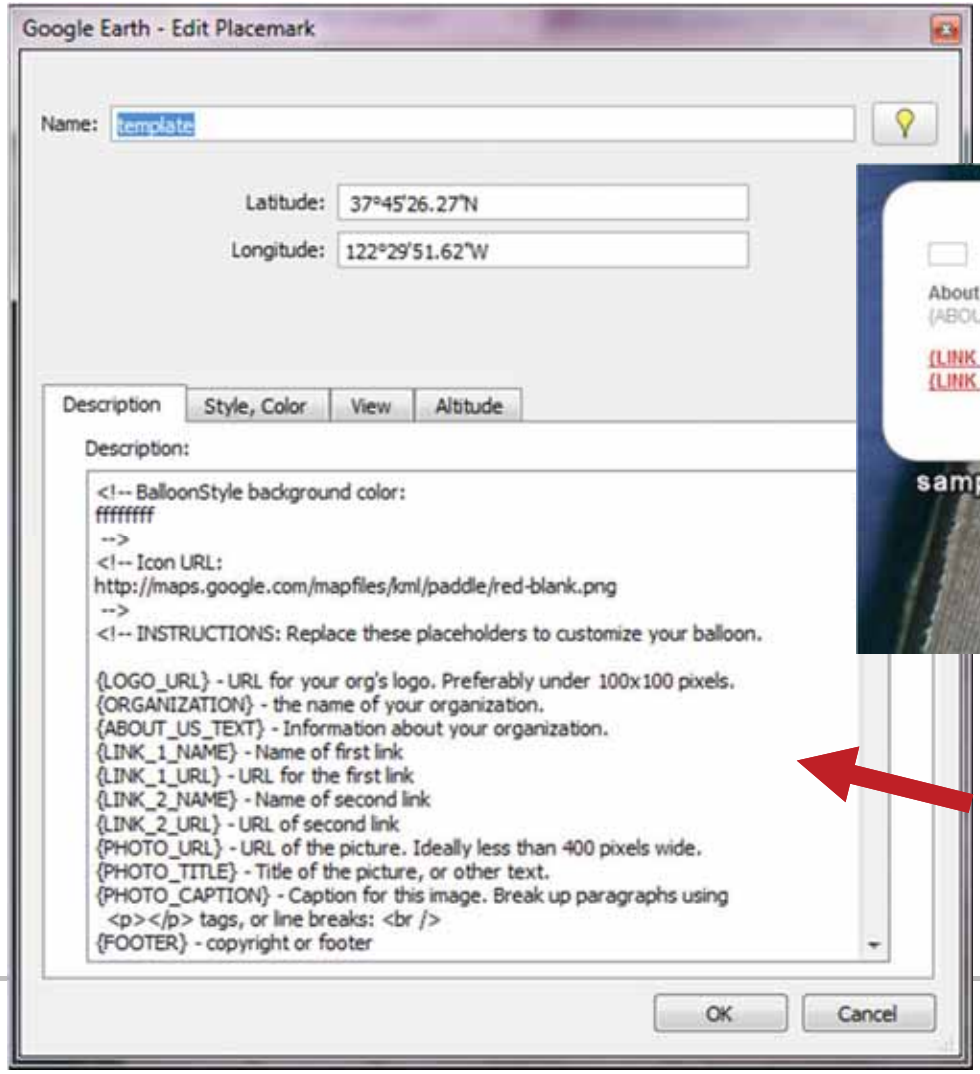
http://earth.google.com/outreach/tutorial_balloon.html

Select a Template



Download Source Code as KML file

Customizing Pop Up Windows



Open in Google Earth

Template Properties window contains customized HTML and instructions

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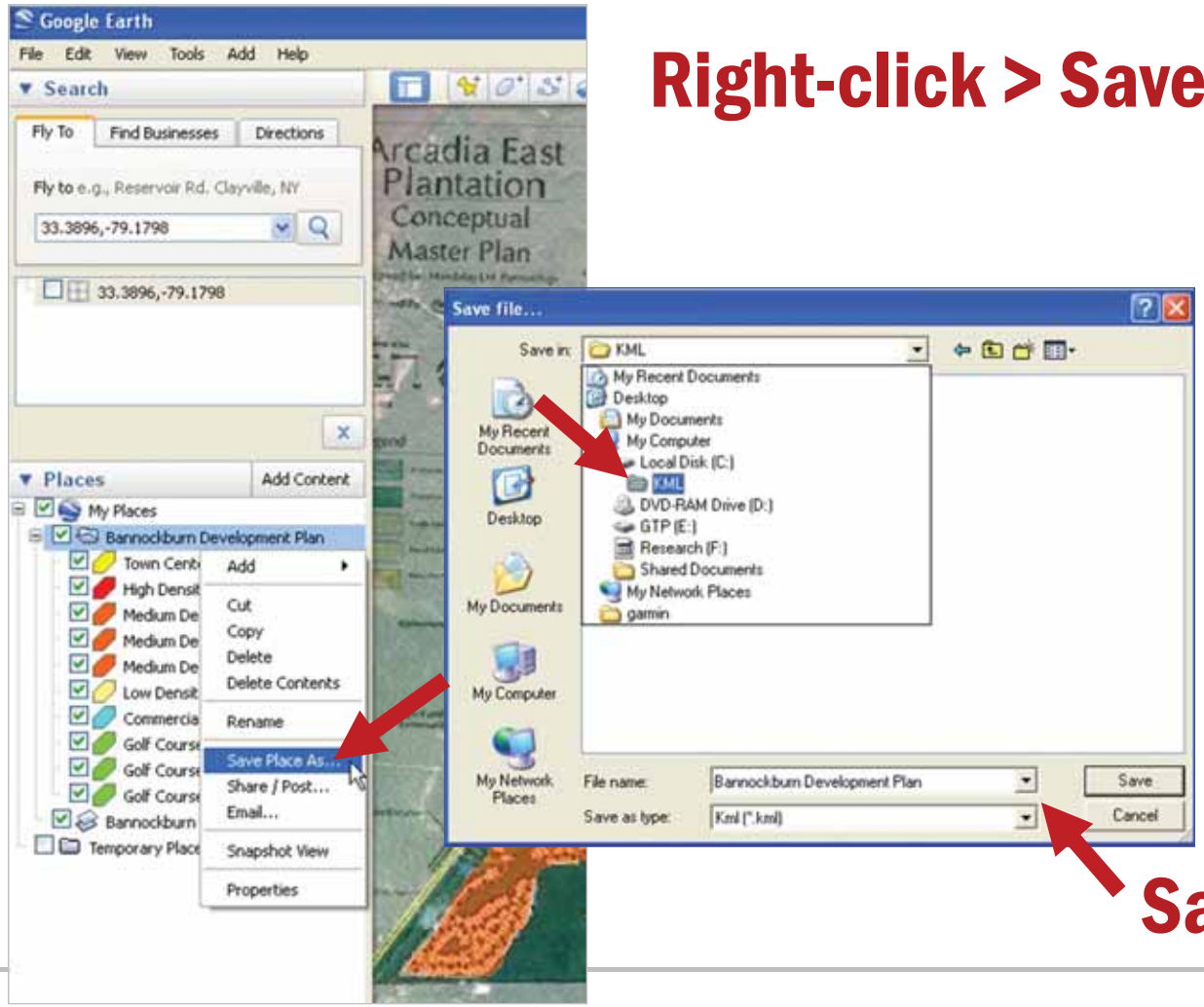
Saving and Sharing Data in Google Earth



Right-click > Save Place As

Save as .KML

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Live Demo

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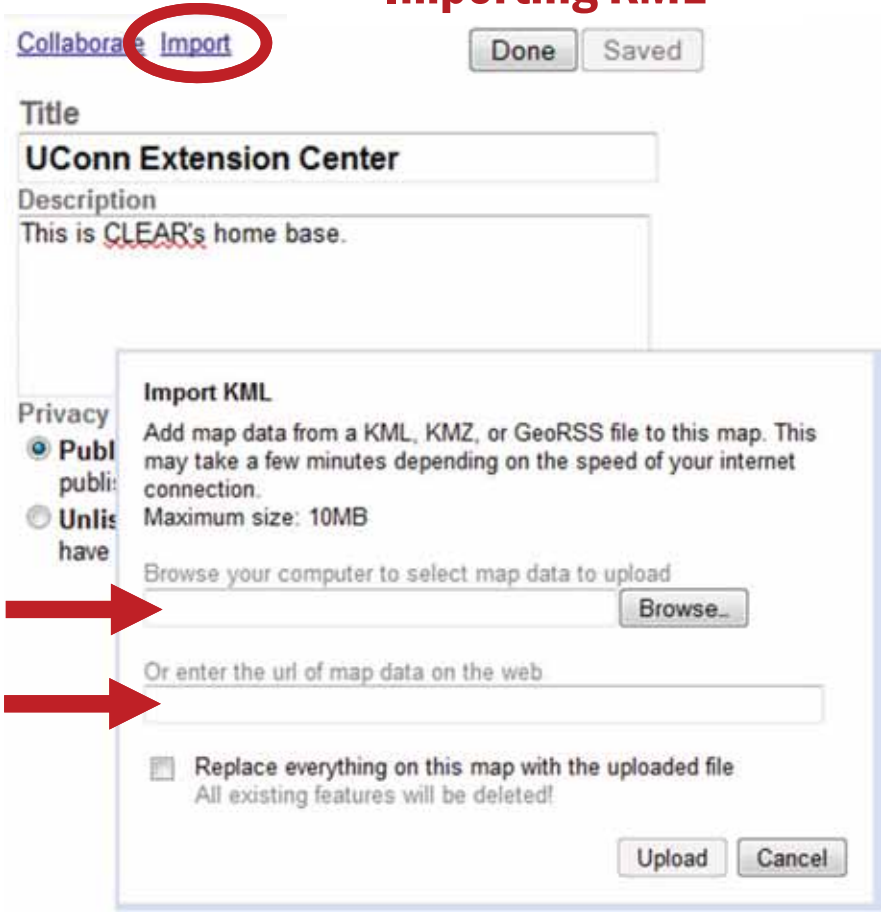
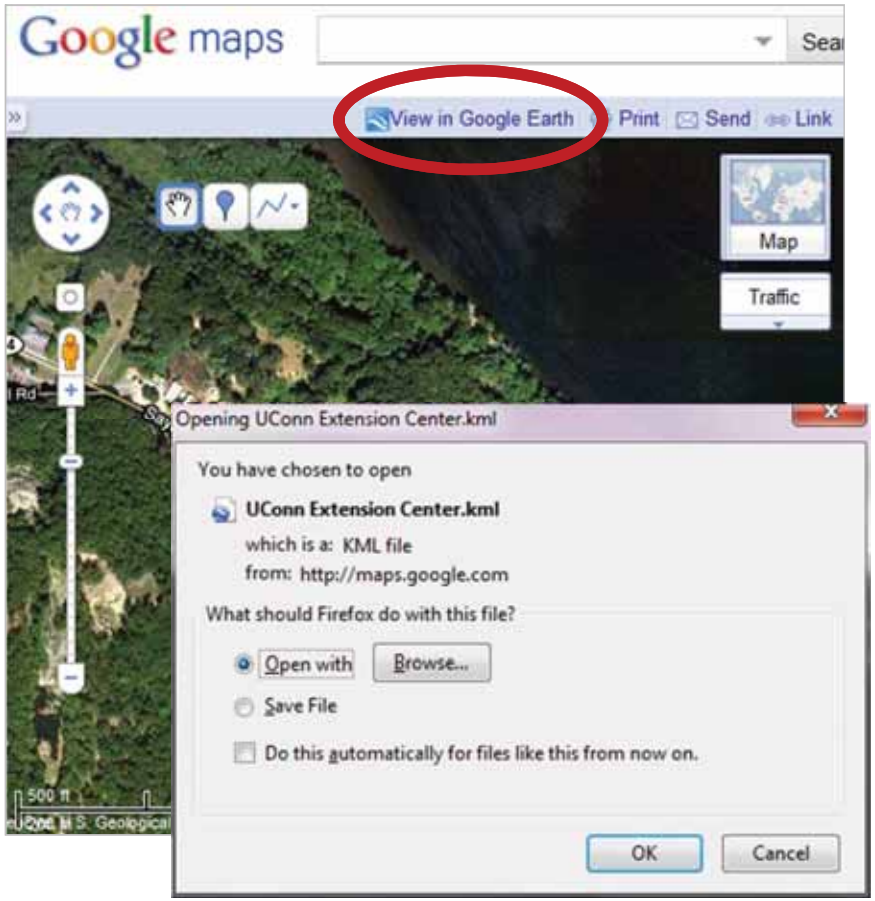
KML in Google Maps and Google Earth

Google maps

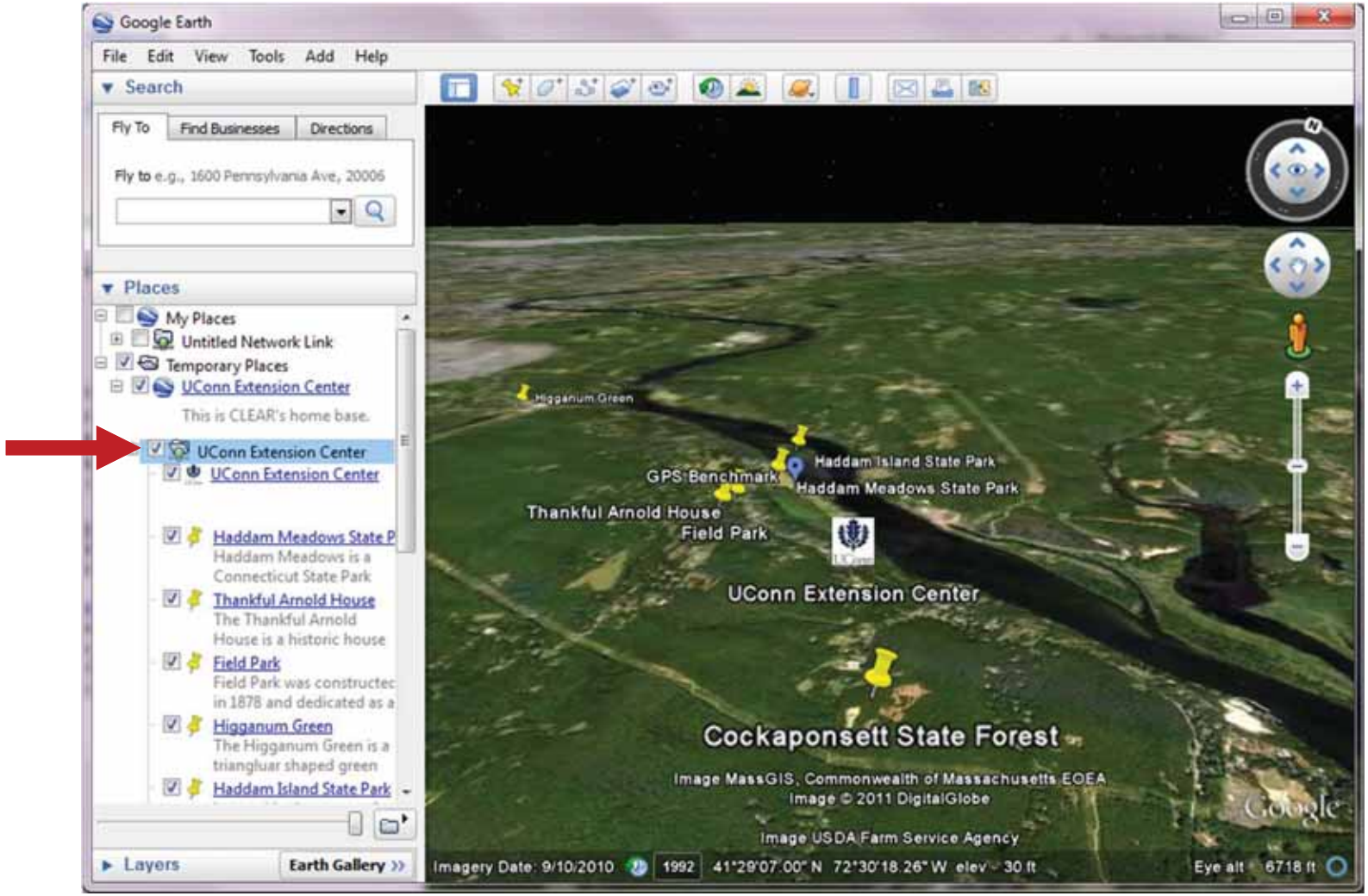
Importing KML



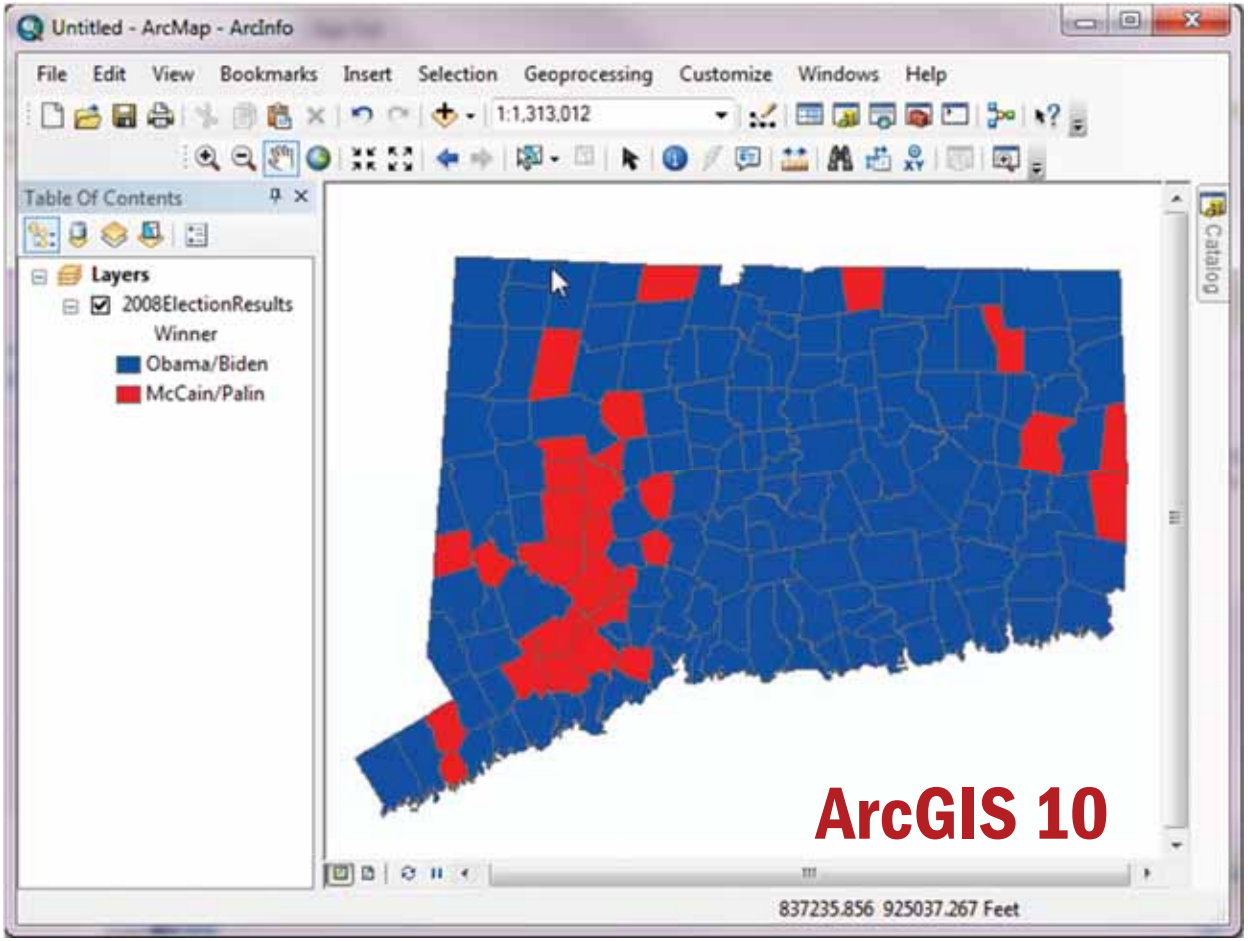
Exporting KML

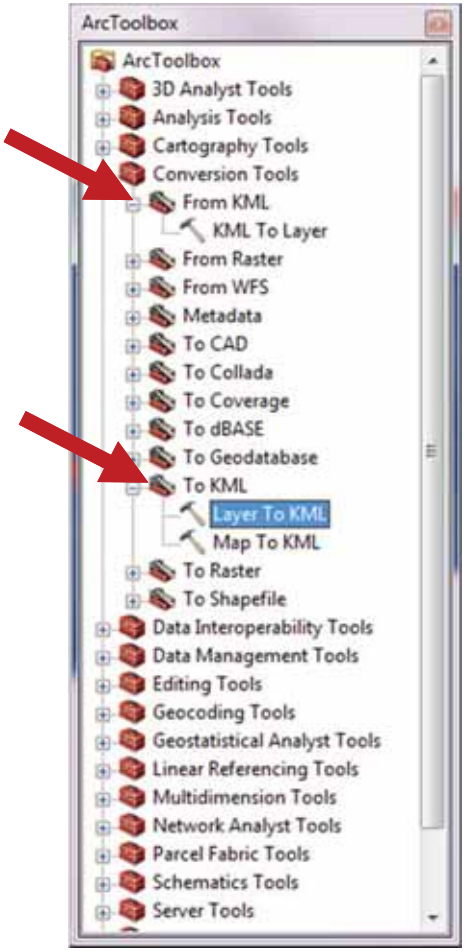


Exported KML in Google Earth



KML for ArcGIS Users





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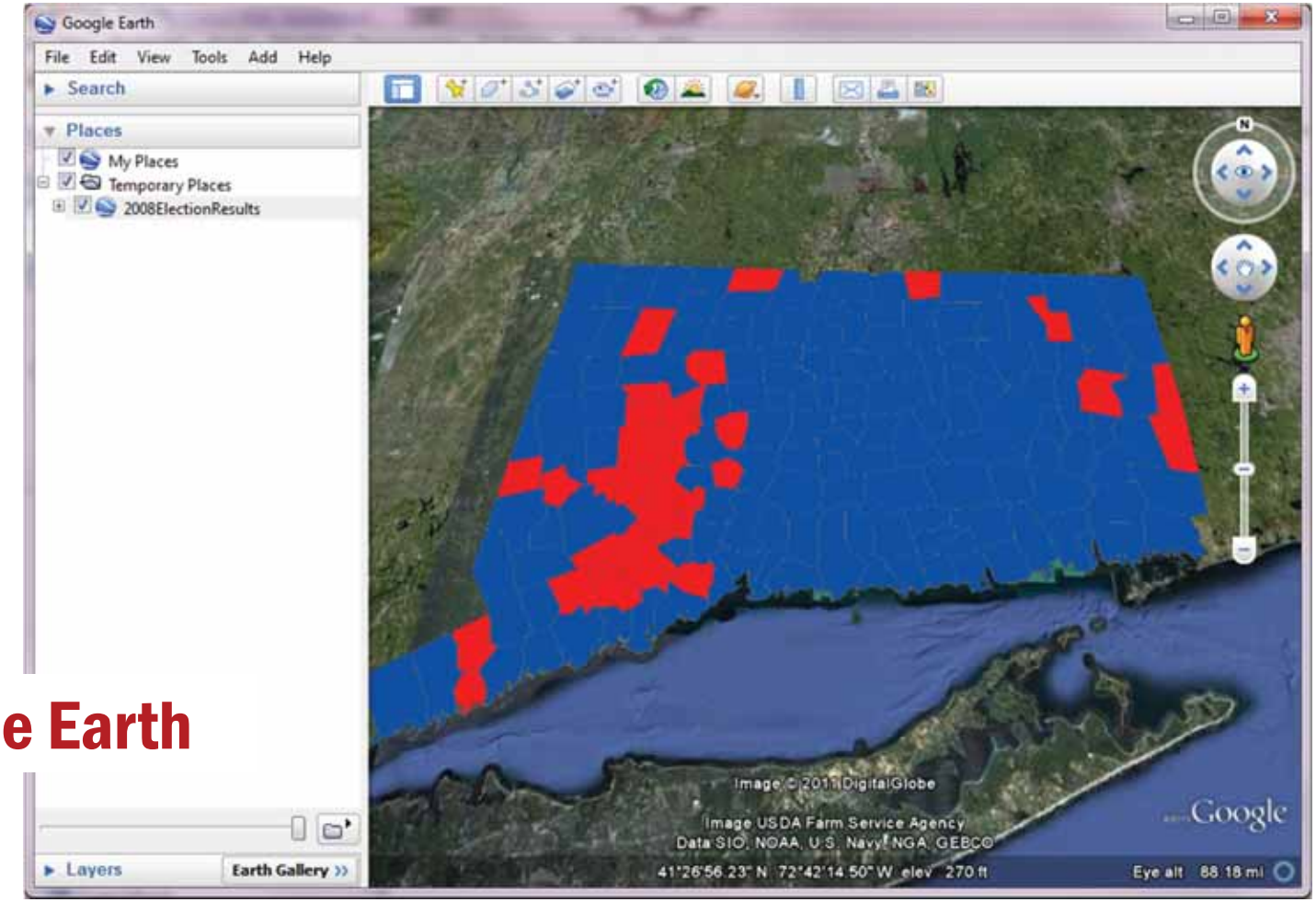
KML for ArcGIS Users



Google Earth

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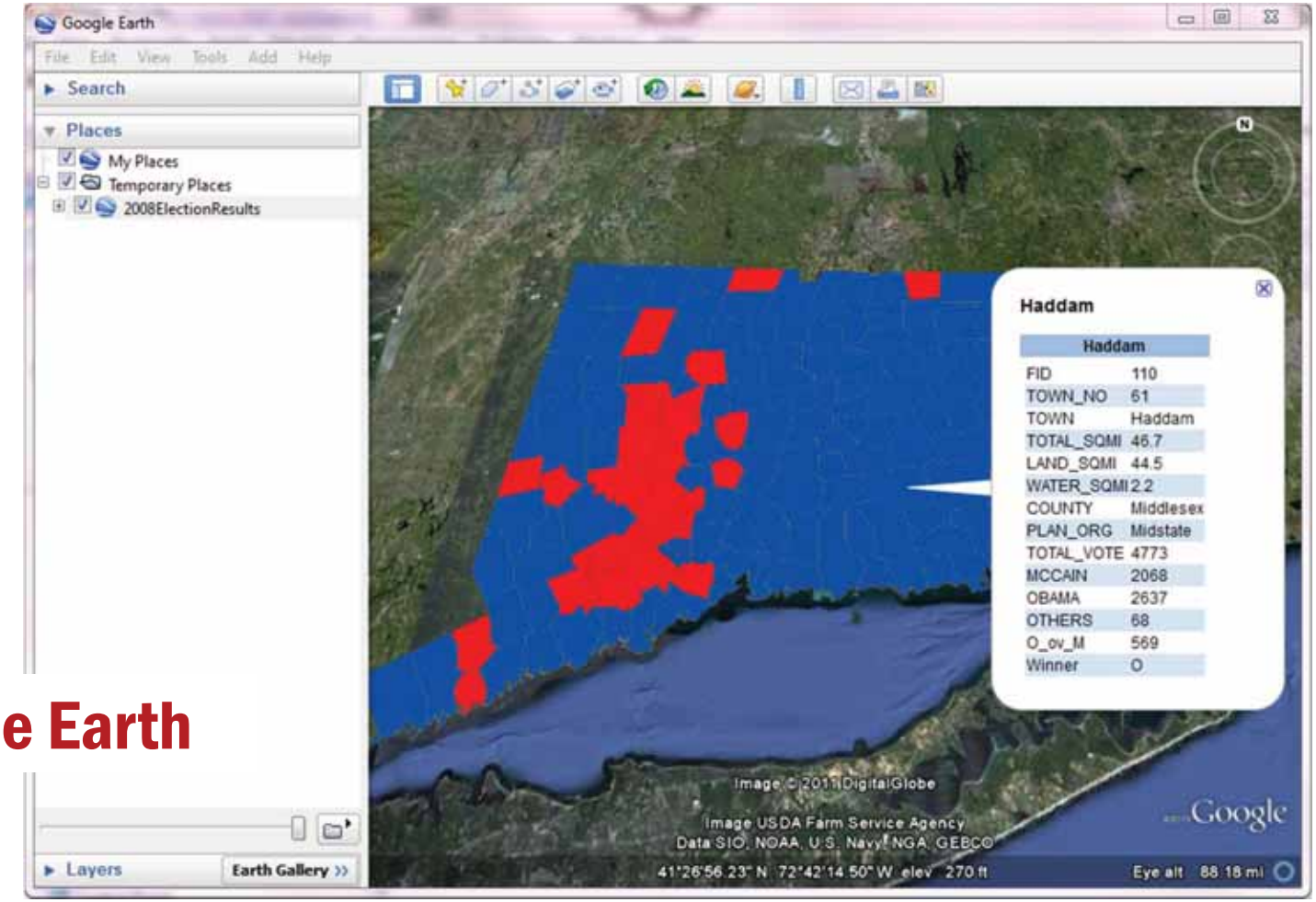
KML for ArcGIS Users



Google Earth

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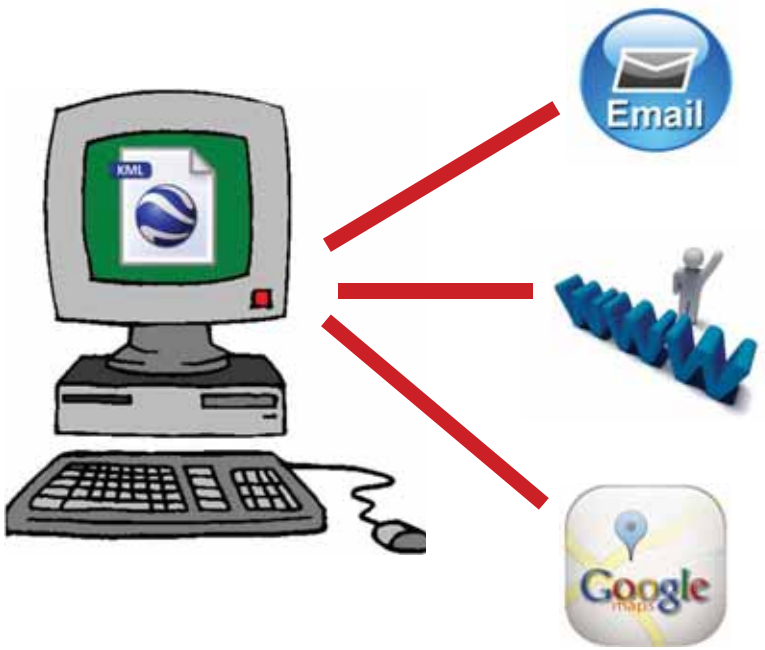
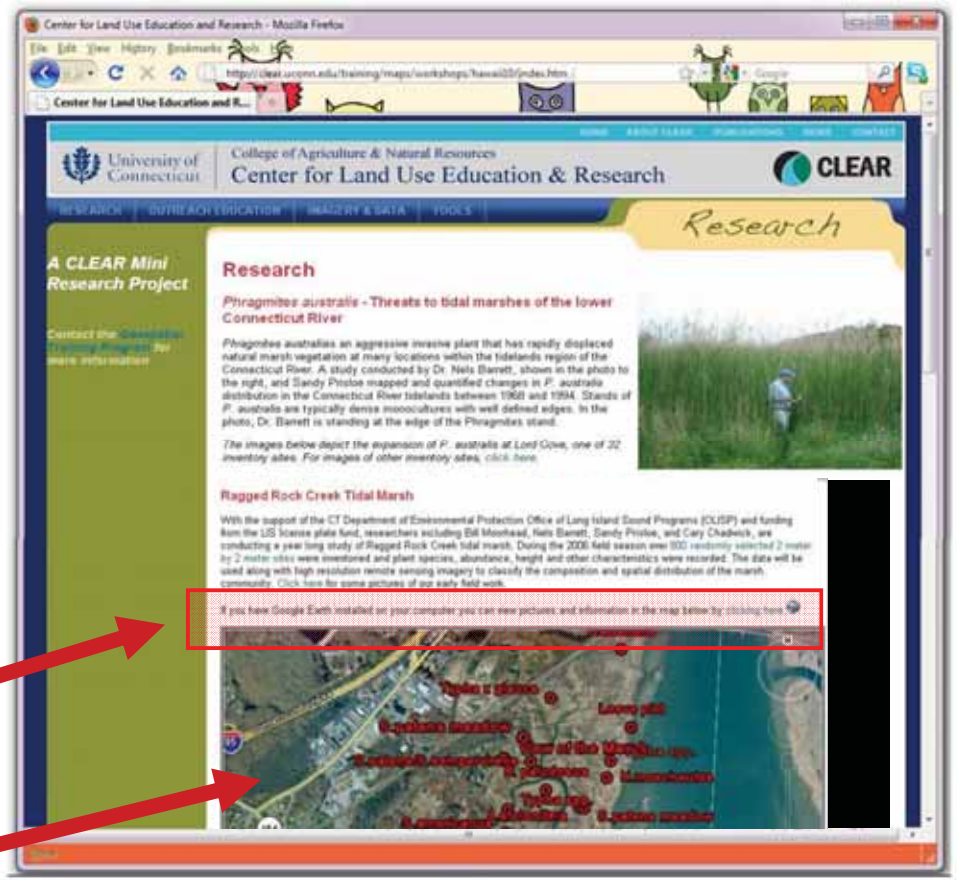
Sharing Your Map Data on the Web



Link to Google Earth File

Embedded Google Earth Map



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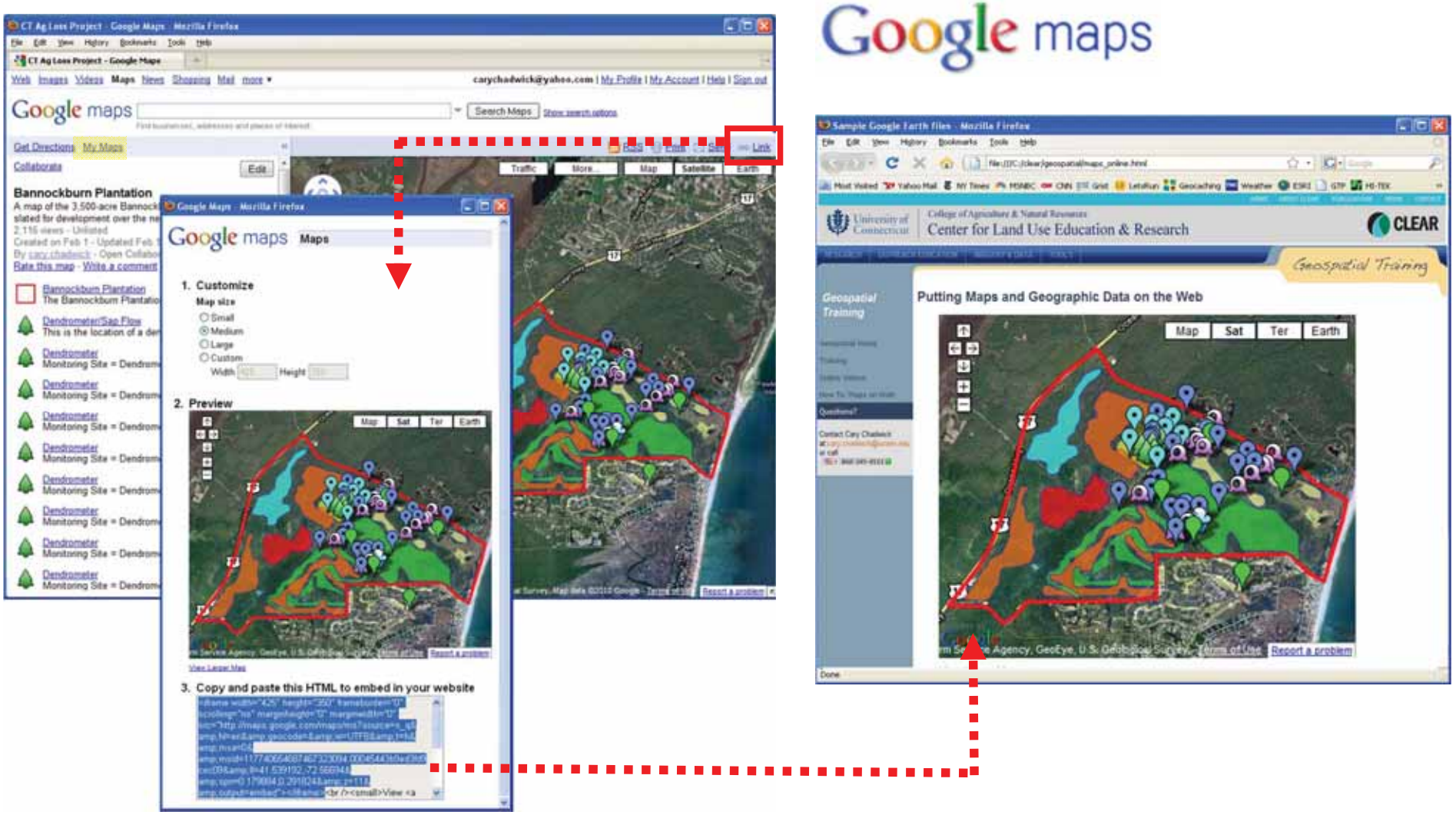
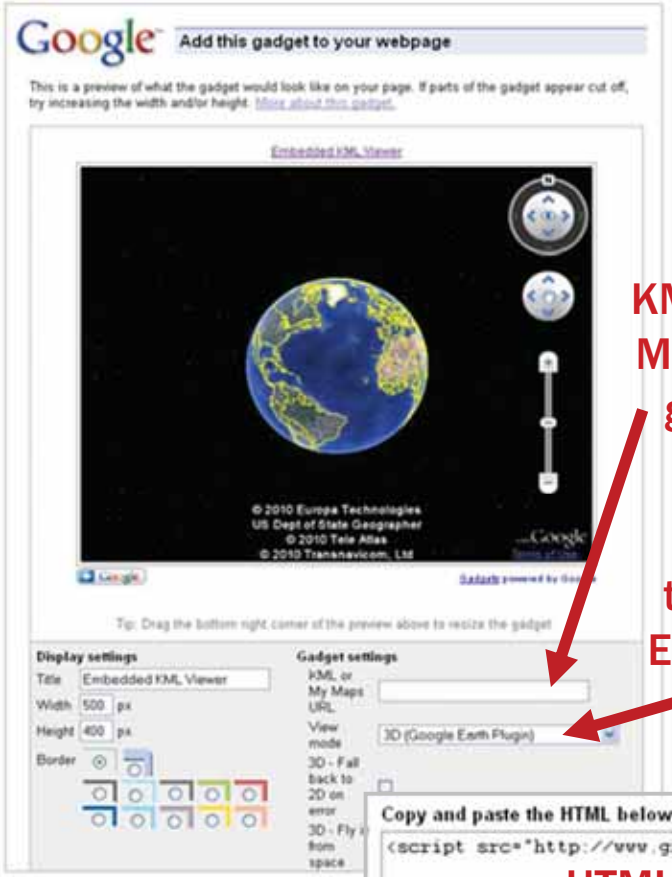
Embedding Maps in Websites – Option 1



Embedding Maps in Websites – Option 2

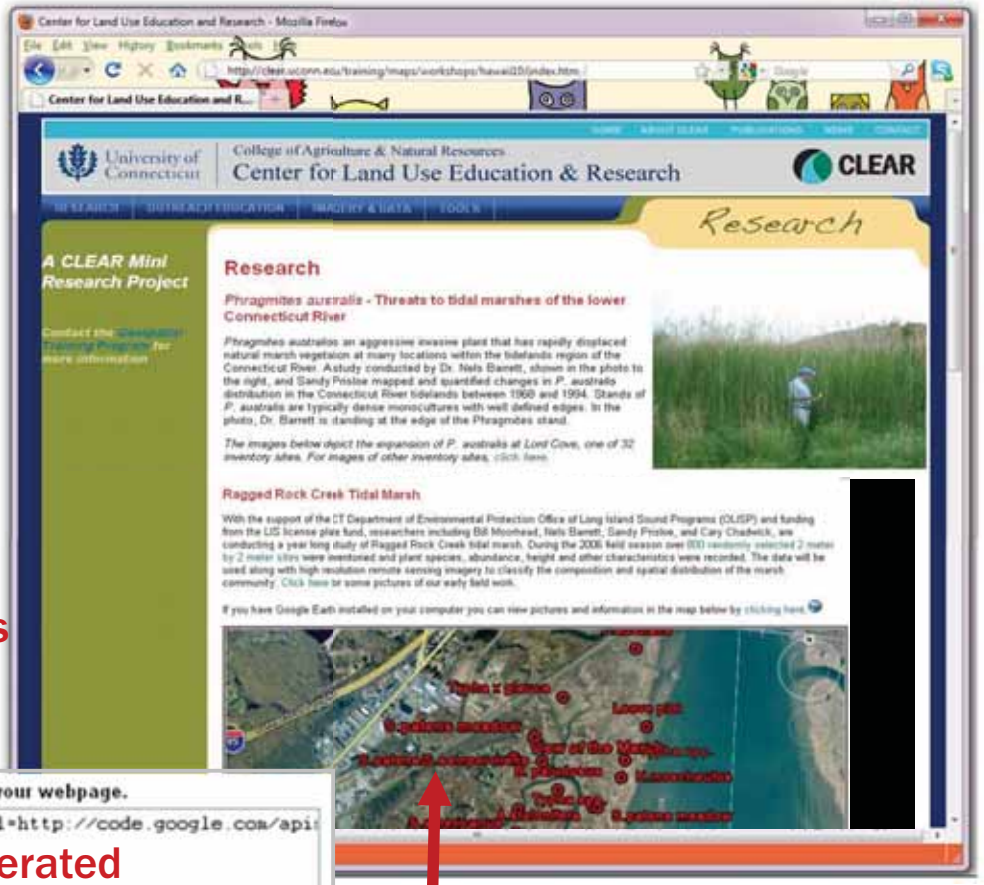
Check out the Google Embed Map Gadget!

http://tinyurl.com/mapgadget



KML or My Maps URL goes in

Select map type (Google Earth requires plugin)

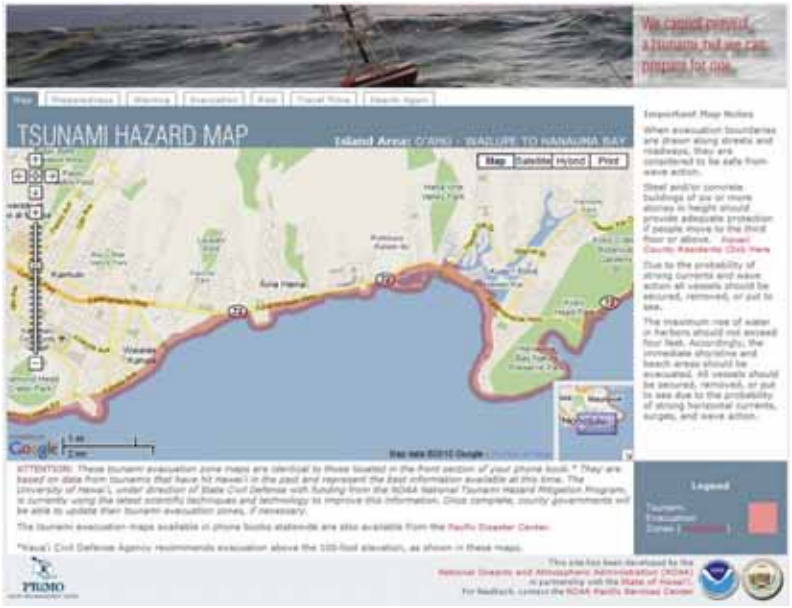


HTML code is generated for web applications

Have You Mastered Basic Mashups?

Advanced Mashup Topics:

- KML Formatting (Advanced HTML)
- Programming with mapping APIs
- Database driven mashups (PHP & MySQL)



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Mashup Resources

Google Earth Resources	
Google Earth User Guide	http://earth.google.com/userguide/v4/
Google Earth Help	http://earth.google.com/support/
Google Earth Community	http://tinyurl.com/beq5z
Google LatLong	http://google-latlong.blogspot.com/
Google Earth Blog	http://www.gearthblog.com/

Google Maps Resources	
Google Maps Help	http://maps.google.com/support/
Google My Maps Help	http://tinyurl.com/kjo4sx
Google Maps Mania (Blog)	http://googlemapsmania.blogspot.com/

KML Resources	
Google Code – KML Guide	http://code.google.com/apis/kml/documentation/
Google Earth Hacks (KML library)	http://www.gearthhacks.com/

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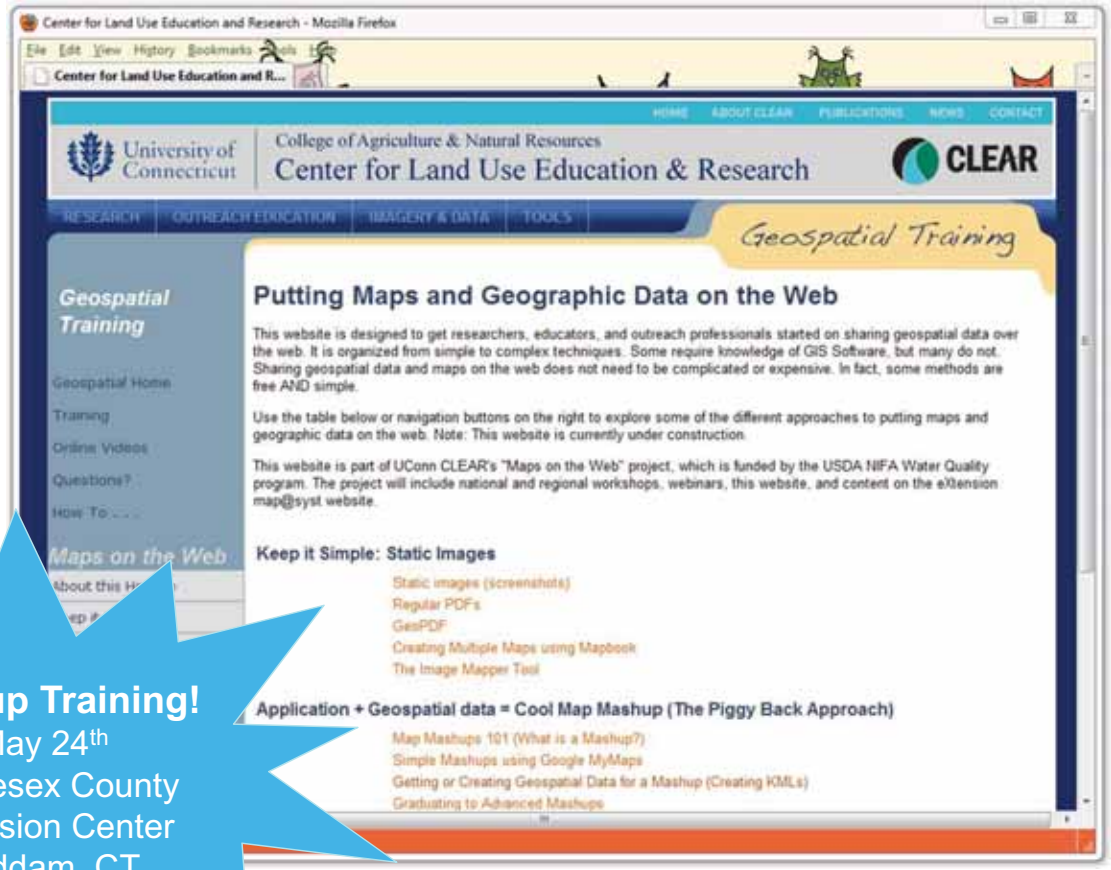
CLEAR Trainings & Resources

http://clear.uconn.edu/training/maps

- **Keep it Simple:** static images, PDFs, GeoPDFs, Image Maps
- **Mashups:** Google My Maps, Creating KML, Working with mapping APIs, Tips and Tricks
- **Interactive Map Services:** ArcIMS, ArcGIS Server



Mashup Training!
May 24th
Middlesex County Extension Center
Haddam, CT

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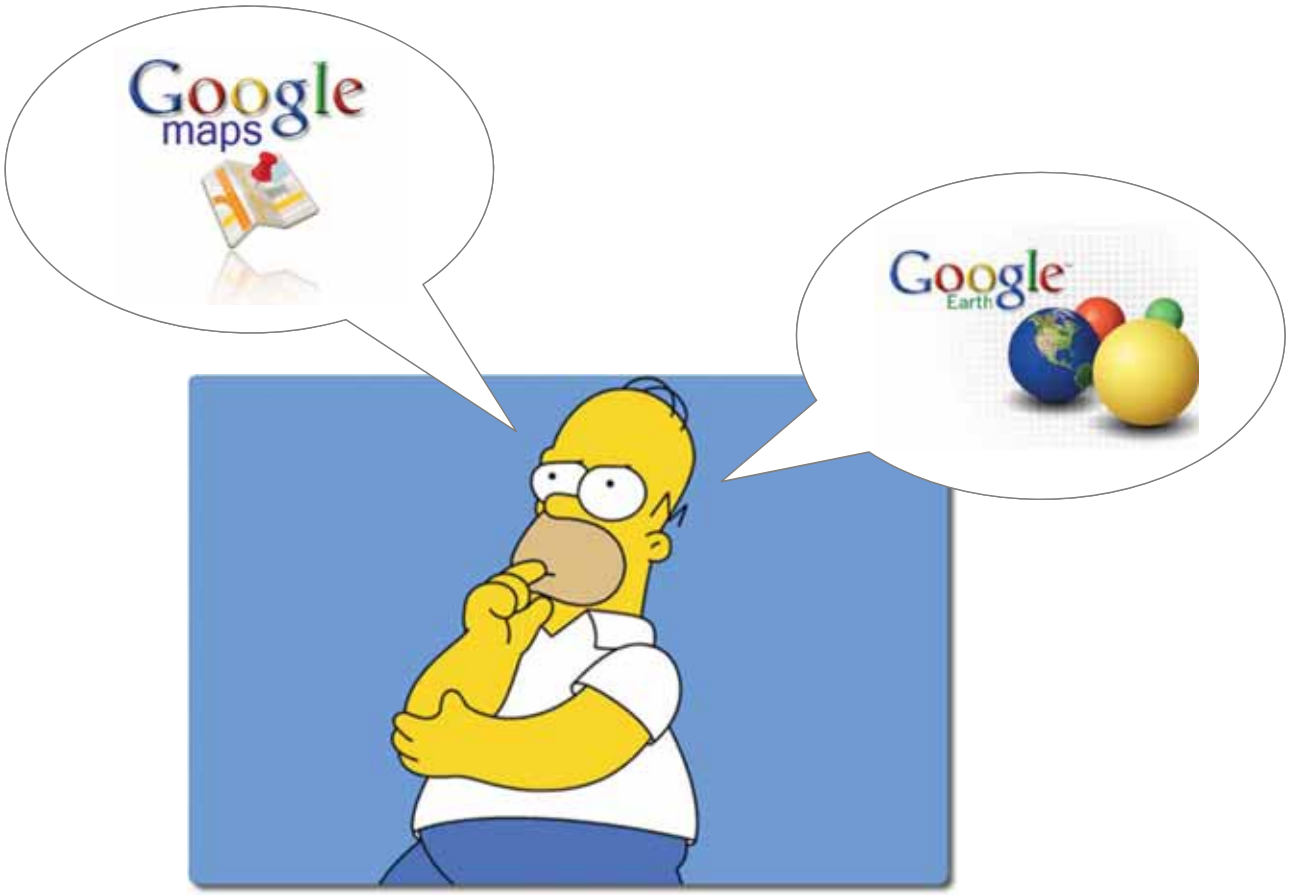
Q & A



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Thank You!

Cary Chadwick
cary.chadwick@uconn.edu

http://clear.uconn.edu/geospatial

"Would you like to see the top on Google Earth?"

© New Yorker, 2007

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