



Student Poster Presentations

Mapping Japanese Stiltgrass (*Microstegium vimineum*) to Show Progress in Eradication

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Japanese Stiltgrass (*Microstegium vimineum*)

- Grows in shade
- Outcompetes natives
- Forms monocultures



Fig. 1. Japanese Stiltgrass



Fig. 2. Japanese Stiltgrass monoculture



Fig. 3. Measuring patch radii

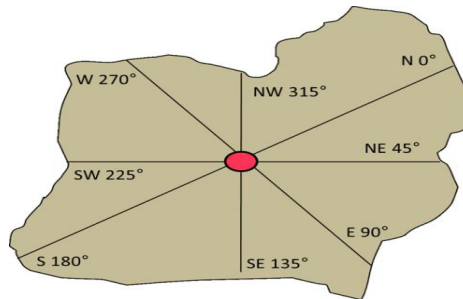


Fig. 4. Patch diagram

Materials

Item	Cost
❖ 2 workers	
❖ Spray paint	\$5/can
❖ Measuring tape	\$20
❖ Compass	\$25
❖ 3" nails	\$10
❖ Aluminum tags	\$80/box
❖ Whisker flags	\$3/25
❖ Data sheets	\$1/sheets
❖ Graph paper	\$3
❖ Trimble 6000 GeoXT	
❖ Total cost (exc. GPS):	~\$300

Patch ID #	60
UTMN	4697009.055
UTME	377162.996
Density	High
Radii N 0°	2.0 m
NE 45°	2.2
E 90°	2.3
SE 135°	2
S 180°	2.7
SW 225°	2.2
W 270°	3.5
NW 315°	2.6

Table 1. Data sheet

Fig. 6. (Right) Red dot= patch center, Black line=patch boundary



Fig. 5. Mapping patch centroids.



VGI's Role in Improving Government 2.0

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What is Volunteered Geographic Information (VGI)?

- A term Goodchild uses to describe geographic information created by citizens⁽⁴⁾
- A special case of user-generated content⁽⁴⁾
- Not subject to quality control, rather is asserted⁽⁵⁾
- Effectively uses the human sensor network⁽⁴⁾
- When put to use, empowers "citizens to create a global patchwork of information"⁽⁴⁾



Image from: Goodwill Community Foundation, Inc. Retrieved from: <http://www.gcflearnfree.org/digitalphotography/entry/64>



Image retrieved from: <http://beekardo.com/archives/comic-20-20/>

What is Government 2.0?

How does VGI fit in?

- The core of government⁽⁷⁾
 - A mechanism for collective action⁽⁷⁾
- Varies depending on who you ask⁽⁷⁾
 - Social media use by government⁽⁷⁾
 - Transparency⁽⁷⁾
 - Capabilities of Web 2.0 applied to government, including crowdsourcing⁽⁷⁾
- Driving force: Participation by citizens⁽¹⁾

Government 2.0



Image source: Winchell, D. (2008, Jun 9). Retrieved from: <http://www.winchell.com/blog/2008/06/09/building-a-vision-for-government-2-0/>

Benefits of a Participatory Government

- Part of an Open Government⁽⁸⁾
- Promote public trust in government⁽⁸⁾
- Enhance government effectiveness⁽⁸⁾
- Enables dispersed knowledge and expertise to be collectively brought together⁽⁸⁾
- May better solve collective problems⁽⁷⁾

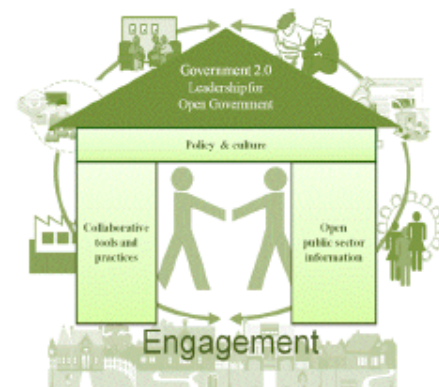


Image source: Grun, N (2008). Retrieved from: <http://www2.net.au/blog/2008/12/13/blogging-the-essence-of-the-blog/>

The Time is Right: Enabling Technologies are Here

- Web 2.0
 - A collaborative and interactive internet⁽²⁾
 - Allows for active participation and user-generated content⁽⁹⁾
- More capable portable devices⁽⁶⁾
 - Staying connected to the internet on the go⁽⁶⁾
 - Location aware devices and applications⁽³⁾

- Provide on-the-go tools for geolocation, sensing and measurement⁽⁶⁾
- Tools that identify coordinates, store them, and tag them to images⁽⁴⁾

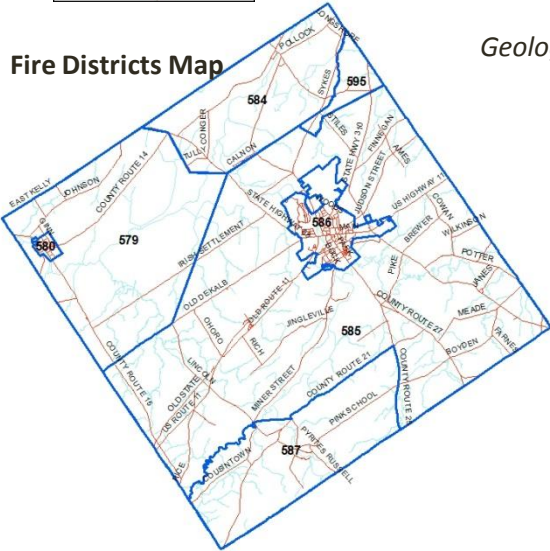


Image Source: Pearson, B. (2013, Aug 12). Retrieved from: <http://pearsoned.com/2013/08/12/with-smartphone-geolocation-and-trust-local-beats-long-distance/>

References:

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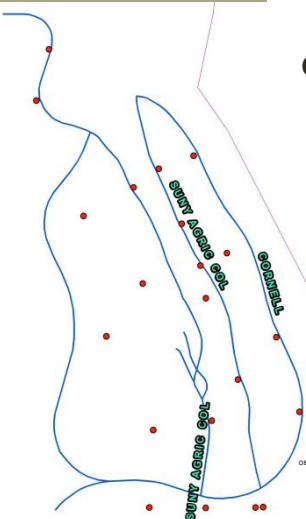
Fire Districts Map



- 579 & 580 - Rensselaer Falls Fire & Rescue
- 584 - Morley Fire, Canton Rescue
- 585 & 586 - Canton Fire & Rescue
- 587 - Pyrities Fire, Canton Rescue
- 595 - Canton Fire & Rescue, Morley First Responders

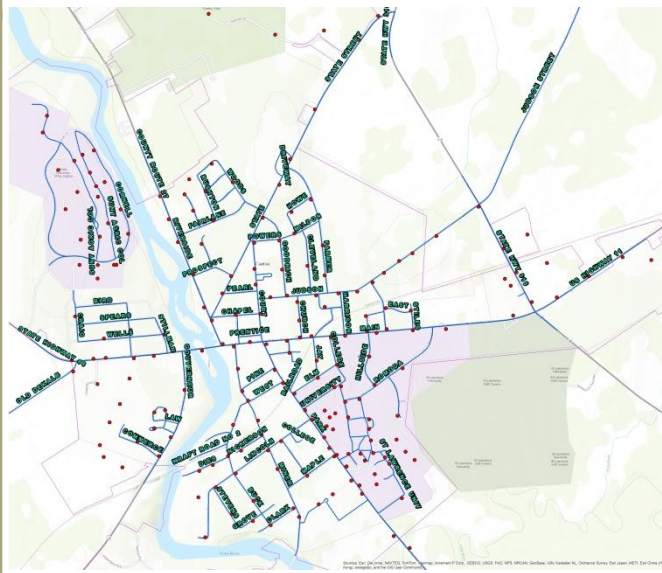
Coordinate Conversion

To locate the hydrants on the SUNY Canton campus, coordinates were given to me as a hard copy form. The numbers were entered into ArcMap and displayed as though they were collected with a GPS unit and a corresponding program.

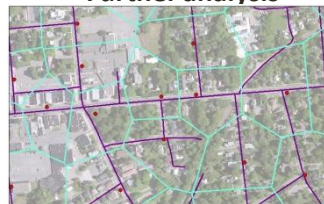


OBJECTID	Type	Label	Easting	Northing
91	Hydrant	HYD091	-75.18106402000	44.60000149140
97	Hydrant	HYD097	-75.18216432840	44.59999150160
82	Hydrant	HYD082	-75.18181527140	44.59999108270
17	Hydrant	HYD017	-75.18235779510	44.60100615130
62	Hydrant	HYD062	-75.17998912810	44.60177167580
59	Hydrant	HYD059	-75.18153212080	44.60220980100
56	Hydrant	HYD056	-75.18053701840	44.60151711570
51	Hydrant	HYD051	-75.18236102470	44.60178866000
44	Hydrant	HYD044	-75.18204010100	44.60474768100

This project was developed to support the Canton Fire Department (CFD) with fire hydrant locations and provide the Department with the ability to determine the fastest routes to an emergency with locations. The compiled hydrant data set was overlain on Town and Village streets, and a network analysis was developed. Network Analysis takes in the physical data of the transportation network in the study area and allows for a connection that with the specific data (usually location points) to create new data that expresses routing functionality. The outcome of these analyses would be beneficial to CFD so they would be able to plan incidents and have readily available reference material.



Further analysis



Additional analysis of this project would include creating a new data management tool that found the maximum service area for each hydrant, up to 2000 feet. The map shown here has areas displayed that are all equal distant from one hydrant to the next but include roads and buildings that do not logically connect.

GPS-ing new Coordinates



All hydrants on the St. Lawrence Campus were re-located using several GPS-specific devices mobile apps. The hydrants shown on this map of the SLU campus are the ones that were updated using a Trimble GPS unit. The other platforms used were applications for ArcGIS and Fulcrum on an iOS device (iPhone 4s). These applications created simple points but did not have the same level of accuracy as the Trimble unit.

Closest Facility



Under the Network Analysis Extensions in ArcMap, a 'Closest Facility' network was created. The two maps show an incident with the closest two hydrants and a suggested route. This may be used as a guide for laying hoses that connect the fire truck to the hydrant. This process would be useful in the preplanning stages that the Fire Department would carry out rather than an on-scene instance

Acknowledgements

A huge thanks to Cant' City for helping me find my way through many of the confusing issues during the project. I would also like to thank Canton Fire Department, Canton Village Offices and SUNY Canton Facilities for allowing me to have access to the databases, Sally Nobel, Canton Village Clerk and Dave Cook, GIS Analyst, DANC, Watertown, NY for providing the GPS hydrant data.