

**Topic/Title:** Assessment of Geoweb mobile applications used to engage citizens in natural resource stewardship

**Organization:** Mountains to Sound Greenway Trust (Greenway Trust)

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**Data available:**

- A list of citizen-engagement apps and their developers (Appendix A).
- An assessment of four citizen-engagement websites (Wang, 2010)

**Project Description:**

Convened by the Greenway Trust, a coalition of nonprofits and public land managers is developing a web-based reporting interface (website and mobile apps) for the outdoor recreation community. Our aim is to engage this large community in stewardship of our wild forests and rivers: our tools will permit citizens to quickly report invasive weed infestations, road washouts, garbage dump sites, vandalism and other problems encountered in the course of a hike, mountain bike ride, or other outdoor activity. A comprehensive assessment of existing citizen-engagement apps will be invaluable, informing our designs with hard-learned lessons related to operating systems (Android or Apple), mapping systems (Google, ESRI, etc.), interface design, information I/O, and data management and so on. Tasks include:

- 1) Compare product features. Create a series of tables that list and rate product features, and allow easy product comparisons. Group products by operating system and mapping system.
- 2) Prepare a comprehensive assessment of the same products from the end-user perspective. The first list of evaluation criteria (related to environmental impacts) will be provided by the Greenway Trust. To start this assessment, you can discuss the evaluation criteria within your student group.
- 3) Interview a small sample of the actual “product community,” for example you could contact product developers, data managers, government agencies, non-profit partners or interested citizens. From their perspective, are the products effective? Are they practical cost-wise? Can programmers extend app functions? Is data easy to manage? Can agencies and partners easily acquire and distribute information?

**Expected benefits to organization:**

1. Better knowledge of the constellation of features available in existing citizen-engagement apps, and of tools that we can incorporate or adapt in our product.
2. A better sense of the features and issues that aid or impede adoption of the product by a variety of user types.

**Expected benefits to students:**

1. They will learn how to systematically assess the feature set of Geoweb applications, and compare their costs and usability from different user perspectives. In the process they will connect with many professionals and organizations involved in Geoweb work.
2. They will gain a broad sense of what it takes to design a Geoweb project.

## Appendix A. Citizen-engagement apps and their developers

Name	Main Function/Purpose	ESRI/GE <sup>1</sup> /Other	Website/App /Both	Android/Apple
<b>General Mapping Platform</b>				
<a href="#">ArcGIS Online</a>	Create interactive maps and apps. Share with your organization	ESRI	Both	<a href="#">Android App</a> <a href="#">Apple App</a>
<a href="#">WebMapSolutions</a>	A web and mobile software development company. Our primary focus is the design and development of location-based apps.	ESRI	N/A (Depends on Cases)	<a href="#">Android App</a> <a href="#">Example</a>
<a href="#">YourGOV</a>	A simple Citizen Request Application that allows you to report non-emergency issues and service requests such as potholes, fallen trees, etc.	GE	Both	<a href="#">Android App</a> <a href="#">Apple App</a>
<b>Template/Prototype Reporting Form in Customized Design</b>				
<a href="#">Fulcrum</a>	A cloud-based mobile data collection tool. Drag & drop builder, offline data capture, custom offline map layers, multi-user organizations, and more.	GE	App	Both
<a href="#">EpiCollect.net</a>	A free, form-based data collection tool (for questionnaires, survey, etc.)	N/A	Both	Both
<a href="#">Open Data Kit (ODK)</a>	A system that is a free and open-source set of tools which help organizations author, field, and manage mobile data collection solutions.	GE	Both	Android System
<a href="#">Locus Map</a>	Android GPS online/offline maps for hiking, geocaching, navigation, GIS, sport and outdoor activities and your everyday life. Interact with Google Earth Format (Import and export (GPX, KML, KMZ))	GE	Both	<a href="#">Android App</a>
<a href="#">MapItFast-Really Easy Mapping</a>	Collect point, line and polygon features and apply attributes without the complexity of learning new software or purchasing expensive hardware (\$250 in full version). Uses online maps for viewing and editing maps. Data is easily exported to KMZ (Google Earth), SHP (ArcGIS, Delorme, All Topo), GPX (Garmin, MapSource), and CSV formats with the click of one button.	Unknown	App	<a href="#">Android App</a>
<b>Invasive Species Focus – Same Platform/Coalition</b>				
<a href="#">The Center for Invasive Speices and Ecosystem Health</a>	The Center is involved in numerous grant funded projects and cooperative agreements relating to invasive species, integrated pest management and forest health. It is a gateway website that serves many downloadable apps.	N/A	Apps: <b>15</b> apps, listed below	Both
<a href="#">EDDMapS</a>	EDDMapS is a national web-based mapping system for documenting invasive species distribution. Launched in 2005 by the CISEH. Incorporated with <a href="#">IveGot1</a> , <a href="#">SEEDN</a> , <a href="#">MAEDN</a> , <a href="#">The Outsmart Invasive Species</a> ,	GE	Website: <a href="#">EDDMapS</a> Apps: <a href="#">EDDMapS</a>	Both
<a href="#">IveGot1</a>	Identify and Report Invasive Animals and Plants in Florida	GE	(Both) Website: <a href="#">EDDMapS</a>	Both
<a href="#">SEEDN</a>	The Southeast Early Detection Network (SEEDN) app brings the power of EDDMapS to your smartphone.			

<sup>1</sup> GE stands for Google Earth and Google Map System.

<a href="#">MAEDN</a>	MAEDN is a vast network of land managers, field experts, citizen scientists, naturalists, gardeners and others interested in documenting invasive plant occurrences in the mid-Atlantic region for the purposes of early detection, improved management and better coordination.			
<a href="#">Outsmart Invasive Species</a>	This project is collaboration between the University of Massachusetts Amherst, the Massachusetts Department of Conservation and Recreation (MA DCR) and the Center for Invasive Species and Ecosystem Health at the University of Georgia.			
<a href="#">Stink Bug Scout</a>	Stink Bug Scout is designed for use by university researchers for making assessments of stink bug populations in fields and across landscapes			
<a href="#">PNEDN</a>	PNEDN let you submit invasive species observations directly with your smartphone from the field. These reports are uploaded and e-mailed directly to local and state verifiers for review.			
<b>Invasive Species Focus – Other Agencies/Designs</b>				
<a href="#">Texas Invader</a>	The Invaders of Texas Citizen Science program collects species observations from volunteer "citizen scientists" trained to use a specially developed Invasive Species Early Detection and Reporting Kit	Unknown	App	Both
<a href="#">Landscape Alternative</a>	This App focuses on plant species that are used ornamentally and have become invasive in at least part of the Midwest	N/A	App	Apple
<a href="#">Forest Insect Pests</a>	This App is intended to help foresters, urban landscaping employees, or others working with trees recognize some of the common pest insects affecting trees in North America and understand their life cycles and how they damage trees.	N/A	App	Apple
<a href="#">Invasion Species in Southern Forests</a>	A Field Guide for the Identification of Invasive Plants in Southern Forests.	N/A	App	Apple
<a href="#">IPANE</a>	Create a comprehensive web-accessible database of invasive and potentially invasive plants in New England	Unknown	App	Both
<a href="#">National Wildlife Refuge</a>	This app allows you to report invasive plants in National Wildlife Refuges in New England	Unknown	App	Both
<a href="#">What's Invasive</a>	Developing freely available systems for enabling Citizen Science activities that preserve our natural environment and increase quality of life.	GE	Both	Both
<a href="#">GLEDN</a>	GLEDN is an invasive species early detection and warning system for the Great Lakes region	Unknown	App	Android App
<a href="#">Plant Tracker</a>	The Environment Agency, the Nature Locator team at the University of Bristol and the Centre for Ecology and Hydrology have	GE	Both	Both

	joined forces to help combat the spread of the UK's most problematic invasive, non-native plant species.			
<a href="#">iNaturalist</a>	Record observations of plants and animals! iNaturalist helps you upload citizen science observations of plants and animals to iNaturalist.org.	GE	Both	Both
<a href="#">Project Noah</a>	A tool for nature lovers can use to explore and document local wildlife and a common technology platform that research groups can use to harness the power of citizen scientists everywhere.	GE	Both	<a href="#">Android App</a> <a href="#">Apple App</a>
<a href="#">USA National Phenology Network</a>	Nature's Notebook is a citizen science program for observing and recording plant and animal life cycle events, like flowering and bird migration (also known as phenology)	N/A	Both	<a href="#">Android App</a>
<a href="#">Networked Naturalist</a>	A Networked Naturalist is someone who uses networked tools, such as mobile phones and the internet, to record and share their outdoor experiences with others! This is the gateway for related mobile app for BudBurst	N/A	Website	N/A
<a href="#">BudBurst</a>	Project BudBurst is a citizen science campaign for the study of the timing of life cycle events in plants as they relate to the environment. With the help of volunteers, we wish to understand what "calendar" plants use to begin flowering, leafing or reproducing.	GE	Both	<a href="#">Android App</a>
Other Environmental Focus				
<a href="#">Panoramic</a>	Panoramic is a web-based system helping organizations communicate the purpose, activities, locations, and accomplishments of their programs. Panoramic provides spatial integration, cross-organization collaboration, performance reporting, an open Application Programming Interface (API) and can be specifically tailored to your program.	Unknown	Website	N/A
<a href="#">Geo-Wiki mobile</a>	Help validate land cover With Geo-wiki mobile (IIASA). Photograph landscapes and share these with your friends and colleagues through Geo-Wiki.org	GE	Both	<a href="#">Android App</a>
<a href="#">Open Scientist</a>	A blog for existing citizen science mobile apps introduction	N/A	Website	N/A