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UPDATING YOUR TREE ORDINANCE, A MAYOR'S PERSPECTIVE

Mary Lou Hildreth, Mayor - City of Keystone Heights



The City of Keystone Heights (pop. 1400--with over 25,000 in the unincorporated area) is approximately four square miles and located in rural Northeast Florida. We have been a Tree City USA for over 20 years and have received the Tree Growth Award for the past five years. Our City has an abundance of old, established trees that require constant care. We also have planted many new trees in public areas. We have a tree inventory and maintenance program.

In 2011, the City applied for a Florida Forest Service Urban and Community Forestry grant. Our goal was to revise our outdated tree ordinance, which was adopted in 1984, as it was no longer an effective management tool. For the last several years, the City has shown improvement in the area of tree care, replacement and preservation. However, we needed to continue to improve our urban forestry management objectives. Specifically, strategies, goals and future vision for urban forest sustainability. The old ordinance did not provide sufficient criteria to achieve the

desired outcome for landscaping within vehicular use areas, preservation of trees within developed parcels and landscaping within the downtown core. Our goal was to focus on the value of trees on private property that contribute to our quality of life.

My main concern was two annexed potential housing developments--one 40 acres, the other 12, with nothing in place to prevent them from bulldozing down every last tree. In some respect, I was grateful for the downturn in the economy in order to allow us time to rectify our current weak code.

We were awarded the grant, but due to changes in personnel and a new City Manager, the actual process was delayed. We finally began the process in October 2012, cognizant that the deadline was January 2013. What seemed to be a simple matter turned out to be a quite an ordeal.

The Growth Management Committee (chaired by my Vice Mayor and seconded by myself, along with citizen members) met long and often with our City Manager, City Planner and staff to update the ordinance. We presented the draft form to the City Council, only to be challenged by a member on the mitigation costs based on DBH. His concern was that it would be too costly for our residents—especially our many retired citizens that live on fixed incomes.

“Our goal was to focus on the value of trees on private property that contribute to our quality of life”

It went back to the Growth Management Committee and, again, after many iterations the mitigation took the form of a formula that was based on an overall tree canopy approach where the mitigation would then be based on average canopy coverage versus lot size. That draft language went to the Planning and Zoning Board who sent it back to committee claiming it was still too restrictive.

Planning and Zoning’s second attempt resulted in the recommendation that “it be written with additional verbiage exempting residential homestead properties that cannot be further subdivided, as well as exempting the removal of nuisance and exotic trees as listed by the state of Florida.” The final draft was re-written yet again to reflect that language with some additional changes

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MOBILE APPLICATIONS FOR URBAN FORESTRY

Mindy Moss - Senior Forester / GIS Manager for Legacy Arborist Services, a Division of Natural Resource Planning Services, Inc.



In today's world, technology is everywhere and the use of technology has grown exponentially. It might be hard to believe, but the first iPhone did not hit the US market until 2007. The growth of applications (apps) for smartphones and tablets over the last several years has been nothing short of astonishing. While some professionals in our field might still shy away from this technology, many more have found that mobile technology can be effectively used in day-to-day activities, increasing their productivity and capabilities. This article will review some of the urban forestry – arboriculture apps that are now available.

Applications differ due to the type of mobile device operating system (OS). The majority of the devices used on the market today operate on the iOS (from Apple), Android (from Google), Windows Phone 8, and Blackberry 10 OS platforms. The operating system of the mobile device will dictate what application store a user will

access to download apps. Apple's iOS and Google's Android systems and phones have been on the market for some time (they both have smartphones that offer apps and touchscreen capabilities); and thus, have had the opportunity to build a large user following and a large collection of applications. By far, Apple has the greatest number of applications available; however, open source applications can be readily available through Google's Android. Both Windows Phone 8 and Blackberry 10 have fewer applications in general because they are newer to the market. More applications should become available overtime as Windows Phone 8's and Blackberry 10's popularity grows.

Mobile applications can be used in the urban forestry field in a number of ways. Mobile apps can be used to collect tree attributes, obtain tree locations, help organize data, and share data with others. Examples for municipality use can be seen in San Francisco, California (*Urban Forest Map* - Android and *SF Trees* - Apple), and Portland, Oregon (*PDX Trees* - Apple). *Urban Forest Map* was developed by San Francisco's Friends of the Urban Forest and allows users (government, nonprofits and community citizens) to map the location of trees. This app provides information on how to measure trunk sizes and determine tree species. The collected data is used to determine the environmental benefits of San Francisco's urban forest, which in turn influences management and planning decisions. *SF Trees*, developed by Elbatrop Ltd., provides access to San Francisco's database of trees – listing and providing a map of approximately 65,000 trees throughout the city. Citizens or tourists can search for trees around their current location, or look at trees in another area by using a search option and street address. *PDX Trees*, developed by Elsewise LLC, was created to map and share Portland, Oregon's designated heritage trees (roughly 281 trees) throughout the city. With *PDX Trees*, individuals can search and locate trees on a map, view the details of a tree by clicking on a pin, take and upload pictures of the various heritage trees, and can even share the tree data and tree location with others via E-mail. These applications were all designed for the public as the end-user; however, applications can also be used for in-house staff purposes as well.

The challenges of using applications to collect and share data must be analyzed and considered prior to beginning any project. If volunteers are used to collect data for a project, one limitation is the challenge of finding a single app that is compatible on all operating systems (volunteers will not likely own the same types of phones and/or tablets). Unfortunately, developers of the various apps do not always make the same application for each type of operating system. To overcome utilizing different applications to collect data in the field – the goal should be to find an app(s) that will provide data in similar formats (e.g. GPS coordinates/waypoints in KML format). Another consideration as to what application to employ is that some applications require Internet access to run, and the Internet may not be available in all locations of a project area. Of course, the major benefits to utilizing applications for projects and day-to-day activities are that the cost is usually insignificant, if any, and the tool(s) are right in the palm of your hands.

A short list of useful applications (apps) for mapping the urban forest is below. This is not a comprehensive list of all applications available.

- **ArcGIS:** This application allows you to zoom into an area, calculate distances and areas, and also determine the coordinates of a selected location. You can share the data through the application to the cloud on arcgisonline.com; however, a subscription with ESRI, the developer, is currently required. For more information, go to: <http://www.esri.com/software/arcgis/arcgisonline>. This app is free to use without sharing and is available on Apple, Android, and Windows Phone. Blackberry offers GeoMobile for ArcGIS as a free application, but is not the exact same app.
- **ArcGIS Collector:** This is a great app for collecting and sharing GIS data and corresponding attribute information. You can also take pictures and video and integrate the collected information into an organization's GIS. Publishing and sharing the information (for GIS integration) is also available through the ESRI cloud (arcgisonline.com) and therefore, requires a subscription. Otherwise, this application is free to download and is available on Apple, Android and Windows Phone. More information can

be obtained at: <http://www.esri.com/software/arcgis/smartphones/collector-app>.

- **GeoCam Free & Geocam Pro (Android version):** *GeoCam* is a geophoto and video application and shows geographical information (compass orientation, GPS position and inclination) on a photo. The developer states that you can export the files to view on Google Maps or Google Earth (KML file format) and determine the distance to objects using a triangulation feature. It is important to note that the export feature is only available on the Pro version of the application.
- **GeoCam Free (Apple version):** This application is very similar to the Android versions discussed above; however, it also states that you can create a PDF report of locations visited and pictures taken. As the name states, this application is free to download.
- **GPS Calculator & GPS Calculator Pro:** GPS Calculator (free) and GPS Calculator Pro (\$1.99) are both available on the Windows phone. The developer states that the applications contains a compass, has a trip calculator, can record tracks, and has GPX, KML and HTML data exporting capabilities. The app(s) also contains a magnetic declination calculator, can access elevation data, and can measure distances and areas. Differences between the free and pro versions are not clearly provided on the Windows app store website.

- **IveGot1:** *IveGot1* is a free app developed for reporting, mapping and tracking exotic invasive flora and fauna. It is available on both Apple and Android and is free.
- **OruxMaps:** *OruxMaps* has been developed and used for land cover mapping. This product will work offline. You can create maps from a series of basemap options using a built-in map creator, and then store them locally for use in the offline mode (the maps are stored on a SD card). One limitation is the inability to download maps larger than 500 MB. While in offline mode, *OruxMaps* will automatically swap stored maps as you travel from one map extent to another. You can also display vector data that was developed in a GIS (by storing it in KML format on the phone). This application also allows you to take and document photo waypoints. This can be extremely useful for creating photos that document the vegetation encountered at specific locations. You can download tracks and way points as KML/KMZ files for viewing in Google Earth. There is a second version of this app that allows you to donate to Orux. This app is only available on Android.

Other useful applications that may be of interest to arborists and urban foresters include, but are not limited to:

- **aHypsometer Lite** - Android
- **ArborCare** - Android
- **Arborist & Arborist App Pro** - Android
- **Arborist Knots** - Android
- **ArborJet** - Android
- **Climbing Knots** - Apple
- **DiaKalc** - Windows
- **Florida Palm Trees** - Android
- **Measure Height** - Android
- **Outsmart Invasive Species** - Android
- **Pest & Disease** - Windows
- **Tree Finder** - Apple
- **Tree Fungi ID** - Android
- **Tree Mitigation Schedule** - Android, Apple, Windows & Blackberry - <http://www.gocanvas.com/mobile-forms-apps/329-Tree-Mitigation-Schedule>. This app must be purchased through the developer's website.
- **Trees** – Guide to Common Species in Southern Florida – Apple

If an application is selected for a project, it is best to determine the application's shortcomings. Thus, knowing how the application generates the results is essential before relying on the data; after all, applications are only tools. For instance, the GPS on your phone is not as accurate as a handheld GPS unit; therefore, the level of accuracy needed for a project may differ from what your phone or tablet can offer. Furthermore, previous users of the apps may have left reviews on the store or developers' website, which may prove helpful and detail shortcomings the apps might have. The best thing to do is to determine what your needs are for a project, and then research the various applications to find an app that best fits your needs.

