

Atterbury Consultants, Inc.

Professional Forestry Services



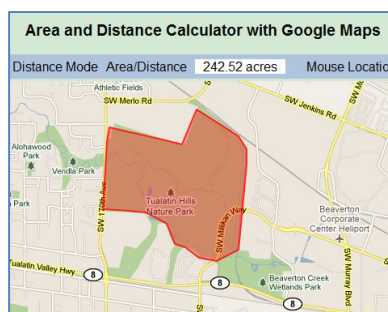
Determine Acres for 100 Bucks

By Paul Wroe

For small land owners or independent foresters, the determination of acres has always been challenging or expensive. There are many solutions with a variety of prices and multiple levels of accuracy. It is up to the individual to understand what best meets their needs.

Land surveyors are reliable and offer a reduced risk, but they are not always available and they can be expensive. There are highly accurate GPS units that are also expensive and technically complex. Learning how to use advanced technology can sometimes be a task unto itself and the cost of training compounds the cost of the software and equipment.

For around \$100, a cost effective and easy to use solution to determine acres includes the Holux M-1200E GPS unit and the ezTour software. Combined with Atterbury Consultants *Area and Distance Calculator with Google Maps*, a user can determine the acres of a given area.



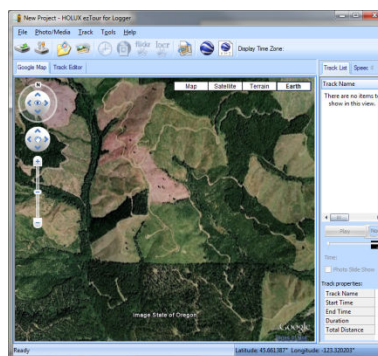
Atterbury Consultants Area and Distance Calculator with Google Maps.



Holux M-1200E GPS Unit

Software and Equipment:

- Holux M-1200E
- ezTour software
- Computer Capable of Connecting to the Internet
- Current Internet Browser



ezTour Software

There are three easy steps to determining the acres.

1. **Collect** – Walk around the area to be measured. Press the button at turning points.
2. **Process** – Edit the traverse.
3. **Upload** – Upload the traverse to get acres.

1. Collecting GPS Data

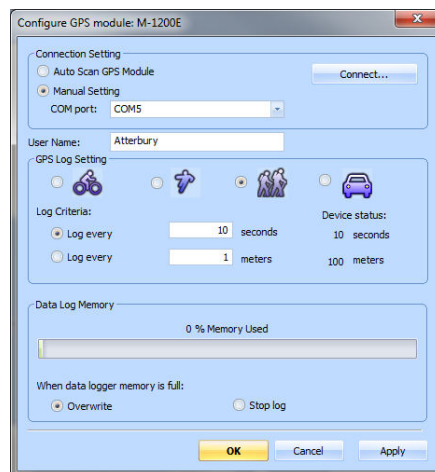
- a. Turn on the GPS unit and wait about 10 minutes so that it can locate satellites.
- b. Keep the GPS above your head for best reception.
- c. Traverse the area and press the Point of Interest button to collect a point.

First go out and collect the data. The benefit of using a GPS logger like the Holux M-1200E is that **no additional equipment is needed**. Just go to the location and turn it on. It is a good idea to let the GPS sit for about five or ten minutes in the open to get a good satellite fix before traversing. Alternately, you can connect the GPS unit to a PDA, Smartphone, or laptop and check the satellite reception. It is extremely important to keep the GPS unit above your head as the human body blocks satellite signals.



Holux M-1200E

Once the GPS unit is turned on, it automatically starts collecting and storing data in its memory. Depending on the configuration settings, the GPS unit will automatically collect points based on time or on distance from the last automatic point.



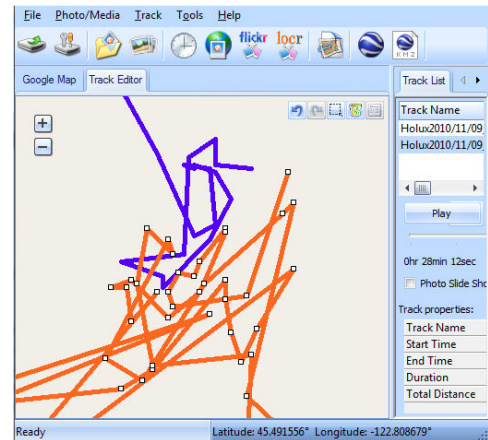
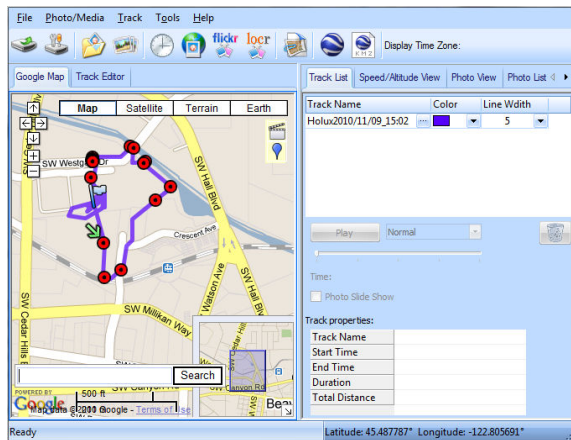
GPS configuration Screen

In addition to the automatic track log you can collect individual points. An individual point is collected by pressing the button on the GPS unit. If you are at a corner or other point of interest, just hit the ***Point of Interest*** button on the GPS unit. If you are worried about not getting a good signal, hit the button again. There will be a step later when multiple points can be visually averaged.

2. Processing Data on ezTour

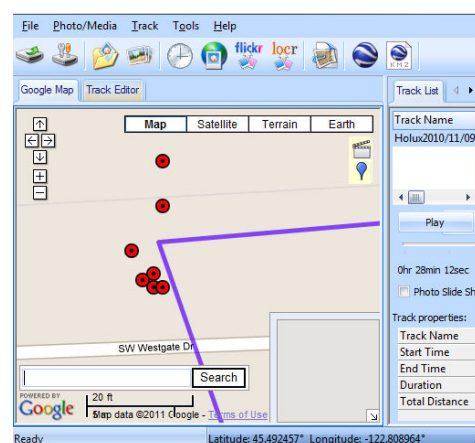
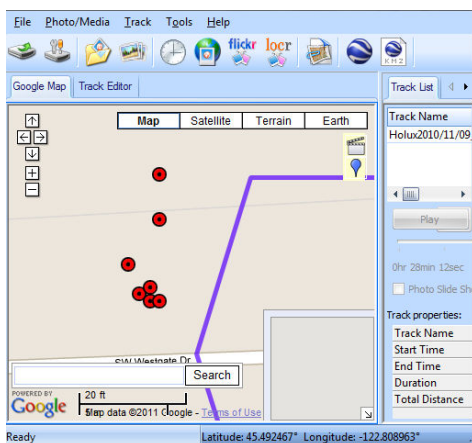
- Connect to the computer via USB cable
- Open ezTour Program and upload data
- Edit data

Once the data has been collected, it needs to be uploaded to the computer running the ezTour software. Uploading the data consists of connecting a USB cable from the computer to the GPS, turning on the GPS, and then clicking on the Read GPS device button in the ezTour software.



After the data has been loaded into ezTour, it needs to be edited. Typically there will be a 'wandering line' segment of the route that is created during startup or while waiting for a satellite lock. Also, you may have recorded the trip to the location to be measured. The ezTour software has a Track Editor tab that allows you to split the track at any point along the track. The unwanted part can be deleted from the project. The whole data set is still available on the GPS unit so it is usually not a concern to remove unwanted parts of the data. The idea here is to remove anything not related to the area in question.

Individual points can be removed or moved. There can be a situation in which the imagery or some other feature dictates that a point needs to be moved. An example of this would be when points taken manually do not match the travel log. The line can be adjusted to fit the visual average of the points quite easily.

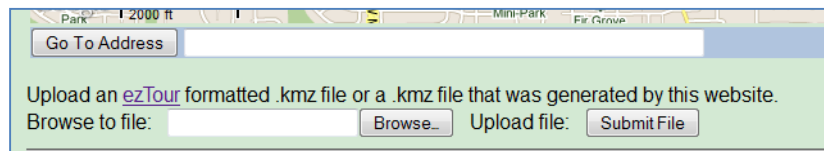


3) Upload KMZ and Get Acres

- a. Export as KMZ
- b. Upload to website
- c. Acres are reported

Once you are satisfied with the travel log's line as a representation of the area in question, it is time to export the data. Clicking on the KMZ button in ezTour creates a KMZ file. This is the standard file format for Google Earth that contains, in addition to the travel log, all of your points and spatially located pictures. It is important that only the part of the travel log that represents the area to be measured is left on the screen after editing because the Atterbury Website will only find the first line segment in the KMZ file.

Upload KMZ files here -> www.atterbury.com/google_maps_acreage_calculator.html

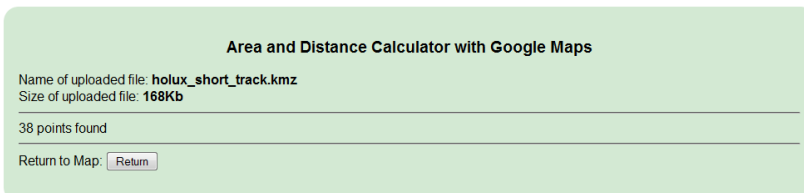


Go To Address

Upload an [ezTour](#) formatted .kmz file or a .kmz file that was generated by this website.

Browse to file: Upload file:

Uploading the file consists of clicking on the **Browse** button and browsing to the exported KMZ file. Once the file has been selected the **Submit File** button needs to be clicked. It may take a few moments to upload the file. The next screen should be a summary of the uploaded file. There are file size and point number limitations currently imposed on the file upload. These may change in the future.

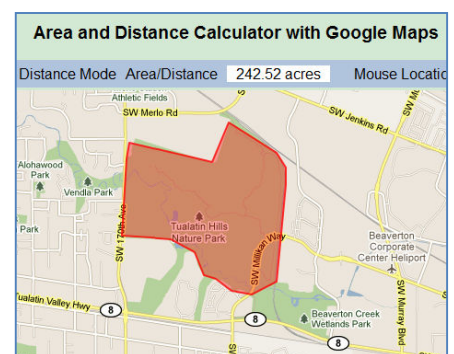


Area and Distance Calculator with Google Maps

Name of uploaded file: **holux_short_track.kmz**
Size of uploaded file: **168Kb**

38 points found

Return to Map:



Clicking on the return button brings you back to the map page where the travel log is now loaded. The last point and the first point have been connected to create a closed area, or polygon. Acres for the polygon are reported at the top of the map.

Conclusion:

The Holux M1200-E and the accompanying ezTour software have a tremendous amount of capability with little overhead. In addition to being able to determine area, it is also easy to collect line and point data. Pictures can also be associated with points taken with little difficulty. The ability to export and share data, including pictures, via Google Earth with the KMZ file format is exciting.

ezTour is not a substitute for a high-end GIS application and Sub-Meter GPS. It has limited capability in several areas. It does not support Shapefiles or Geodatabases. Although there is a way to convert the KMZ to a shapefile, it is a difficult process. The GPS receiver is only rated for 2.2 meters. Despite the limits, many small land owners or independent foresters can determine acres without spending thousands of dollars on a complete GPS/GIS integrated system. It is probably best to consider ezTour as an entry level application to the concept of GIS.

Accuracy:

Accuracy is a great debate. Often, people ask how accurate something is. This method is \$100.00 accurate. If more accuracy is needed, more money will need to be spent. The question should be, "Is this method accurate enough for my needs?" It is certainly more accurate than guessing and less accurate than surveying. It is also less expensive than a survey and more expensive than guessing.

Advantages:

- Computer work stays in the office/home office
- Very inexpensive
- Easy to use
- Can utilize Google Maps imagery

Limitations:

- Dependent upon website connection
- Data is not post correctable
- Accuracy is not sub-meter
- No feedback. Poor reception may be a problem and you won't know until you get back to the office unless output is checked with a Smartphone or PDA periodically.

Additional Uses:

- Automatically Map Roads
- Connect GPS to Other Systems
- Spatially locate photos or other points of interest
- Share locations by emailing KMZ files

Equipment Descriptions:

Holux M-1000E GPS unit

The Holux M-1000E is a small GPS unit that also logs data. It has the ability to store both a travel log and points of interest. It can be connected to other devices via Bluetooth or mini-USB to be used as a regular consumer grade GPS transceiver. The unit has an accuracy rating of 2.2 meters, horizontal 95% of the time with the WAAS satellite.

The antenna is more sensitive than most comparable GPS units. Because of this, it usually **does not** go 'dark' under canopy like many other units. Instead, it tends to become less accurate. It is generally desirable to get a mediocre reading rather than no reading at all.

ezTour Software:

The ezTour software package has multiple capabilities. It is a utility for getting data off of the GPS logger, it is an editing platform, and it allows you to export your data. In addition to this, you can geocode pictures.

Atterbury Consultants Area and Distance Calculator with Google Maps:

The Area and Distance Calculator with Google Maps is a webpage that displays Google Maps and has tools for determining acres. Smaller files from the ezTour software can be uploaded to the website to determine acres. Acres can also be calculated by selecting points on the webpage itself which is beneficial when it would be cost prohibitive to drive to the property for a quick traverse. Because of the available layers with Google Maps, including satellite imagery and some parcel boundaries, the webpage is extremely useful.

More Information:

The Holux M-1200 manual can be found on the web in numerous places including:

http://www.atterbury.com/pdf/holux_m1200e_users_guide.pdf

The ezTour manual can be found on the web in numerous places including:

http://www.atterbury.com/pdf/eztour_users_manual.pdf

The Google Maps API information can be found here:

<http://code.google.com/intl/en/apis/maps/documentation/javascript/basics.html>

Contact Paul Wroe pwroe@atterbury.com for additional information.