

## *Understanding Your GPS Receiver*

There are six buttons on your eTrex Venture HC that you need to be familiar with (Figure 1). These buttons include:

1. The Power Button
2. The Page/Quit Button
3. The Zoom-out Button
4. The Zoom-in Button
5. The Menu/Find Button
6. The Click-Stick button
7. The GPS antenna

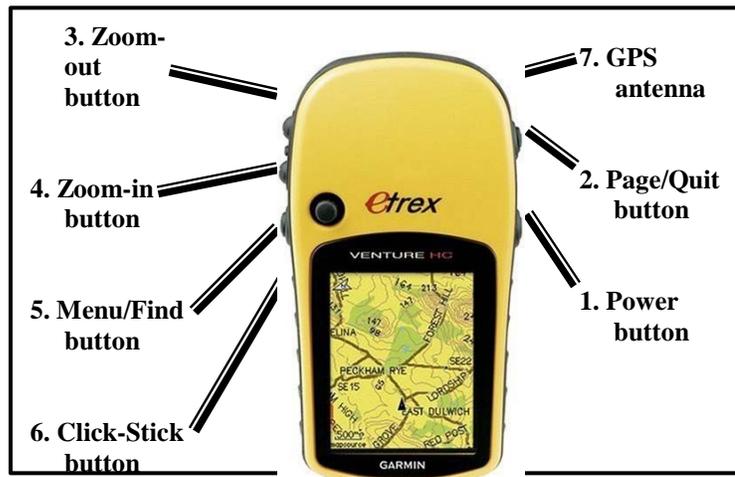


Figure 1

1. The **Power button** is the button that turns your GPS receiver on and off. This button will also turn on the backlight (so that you can use your receiver at night). Note that using the backlight will consume your batteries faster!!!
2. The **Page/Quit button** is used to scroll through various pages (i.e. screens) on the GPS receiver or to back out or quit a menu or page. There are four different pages that you can cycle through by pressing this button (Figure 2). These different pages include the:

- Satellite Page (only appears at start up when acquiring satellite signals)
- Map Page
- Compass Page
- Main Menu Page

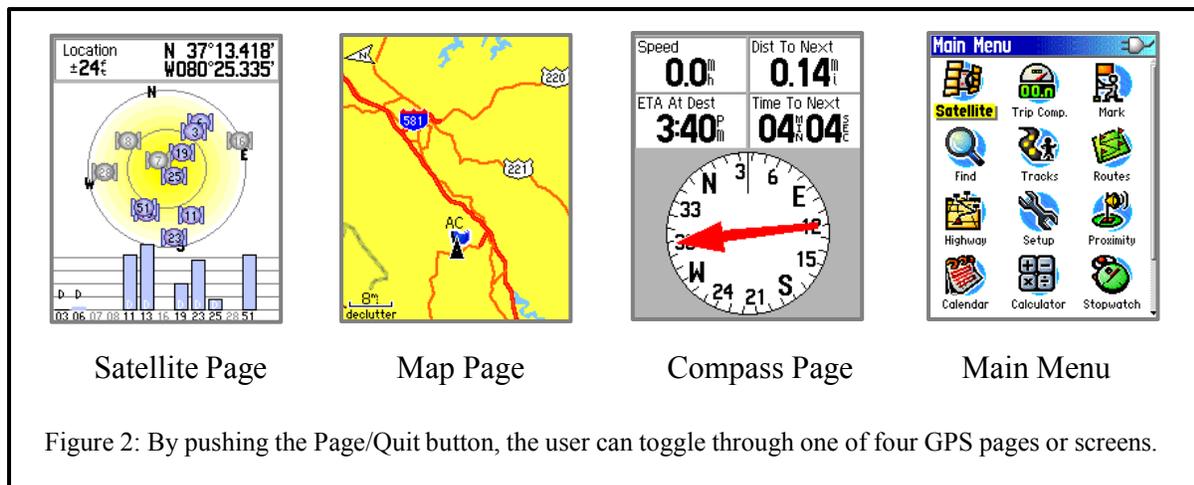


Figure 2: By pushing the Page/Quit button, the user can toggle through one of four GPS pages or screens.

3. The **Zoom-out button**: From the Map Page pressing this button will enable you to zoom out on the map. From any other page, press to scroll or move a highlighted slider up.
4. The **Zoom-in button**: From the Map Page pressing this button will enable you to zoom in on the map. From any other page, press to scroll or move a highlighted slider down.

5. The **Menu/Find button**: Press and release to view the Options Menu for a page or press and hold to display the Find Menu from any page.



6. The **Click-Stick (mouse)**: The Click-Stick (Figure 3) is very similar to a computer mouse. The Click-stick will enable you to navigate to different menu options by pushing the click-stick in a direction (left or right; up or down).

Figure 3  
The Click-Stick works like a computer mouse

Furthermore, you can use the Click-Stick as a button (by pressing it straight down or “in”) to activate highlighted selections. Pushing the Click-Stick “in” is similar to clicking your mouse, or hitting the “enter” key on a computer keyboard.

## Getting Started: Using Your GPS Receiver

Turn on your GPS receiver by pushing the power button. The satellite page will automatically appear (Figure 4).

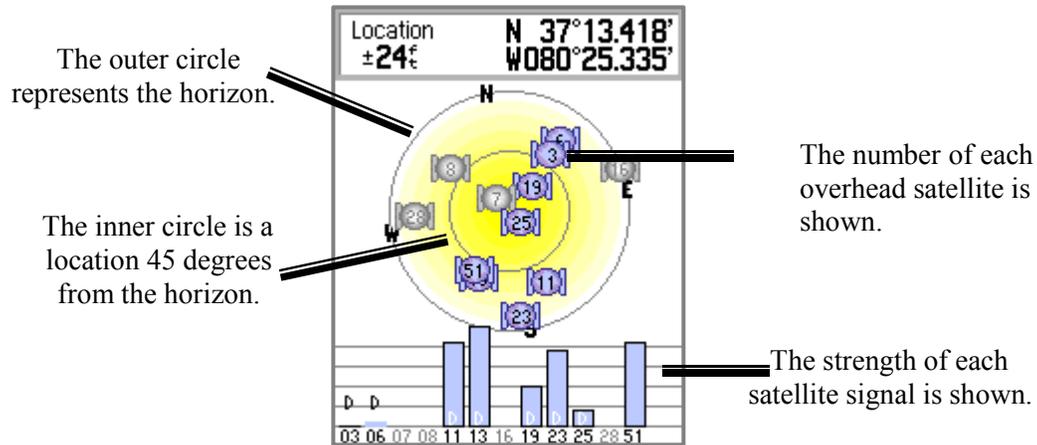


Figure 4

It normally takes a couple of minutes for the GPS receiver to “home-in” on the satellites, and to determine a location. Initially, the status window may read: *Wait...tracking satellites*. The GPS receiver will be ready to use when the satellite page disappears and the map page is showing.

The satellite page can be seen at any time by going to the Menu Page and selecting *Satellite Page*. After the GPS receiver is ready to navigate, a location (x, y coordinates) and error ( $\pm 24$ ft) for the location will appear in the upper section of the satellite page (see Figure 4).

Your GPS receiver has now been initialized, and is ready for use to support your extension application needs. The GPS receiver can be used, for example, to:

- identify and mark areas within tree stands for future reference (research plots, areas of infestation, etc.).
- estimate area measurements of a field/ tree stand (estimate fertilizer application needs)
- estimate the perimeter of a field/ tree stand (estimating fence line lengths)

## Marking and Saving Waypoints

Waypoints enable you to mark and record your current location as a waypoint. A waypoint is a “virtual” location marker. Once a waypoint is established and saved, you can easily navigate back to the waypoint using the GPS. This can be helpful to locate research plots in a large stand, identify and relocate potential pollution sources, or to identify and mark specific areas within an area that have been impacted by blight or disease (that you may want to return to at a later date). It is also possible to upload Waypoints to a desktop computer (using DNR Garmin or GPS Utility or similar software program).

### To mark and save your current location as a waypoint:

1. Walk to the point where you want to obtain a waypoint.
2. Press down and hold the Click-Stick until the *Mark Waypoint Page* appears (See Figure 5).
3. This GPS automatically assigns 3 digit numbers to waypoints (in this example, it assigned 001 as the waypoint name). You can customize the name of the waypoint. To change the name of the Waypoint, use the Click-Stick to highlight the waypoint name field (in Figure 5, the name field is 001).
4. Type the new name for the waypoint, using the Click-Stick to select and enter the characters from the on-screen keyboard and select OK (Figure 6).
5. You can also change the marker symbol associated with the waypoint by selecting the marker (with the Click-Stick) and scrolling through the different options (Figure 7).
6. Use the Click-Stick to scroll down to the OK button, and select the OK button to save the Waypoint.



Figure 5

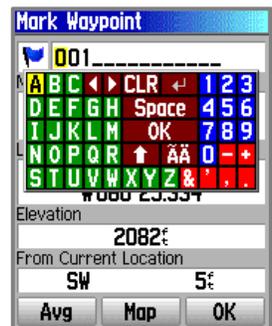


Figure 6



Figure 7

## *Finding (navigating to) a Waypoint*

Your GPS can serve as an “automatic pilot” to navigate you back to a previously defined Waypoint! To navigate back to a previously defined waypoint, follow these steps...

1. Press and hold the MENU/*FIND* button on the left side of the GPS receiver (Figure 1)
2. On the *FIND* menu, select *Waypoints* using the Click-Stick (Figure 8)
3. Use the Click-Stick to select the desired waypoint from the list (Waypoints are typically listed alphabetically).
4. Select the “Go To” option to create a direct line of travel to the Waypoint (Figure 9).



Figure 8

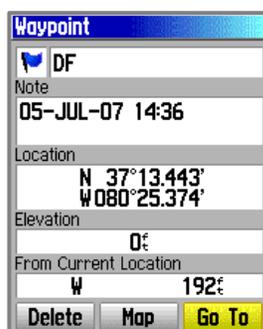


Figure 9

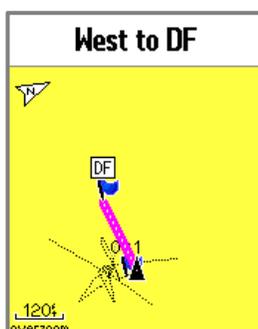


Figure 10

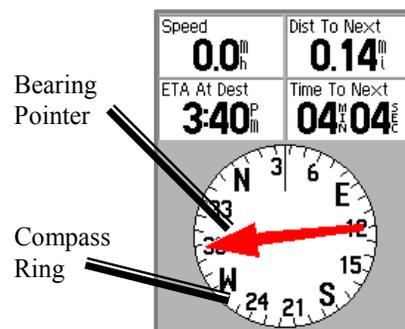


Figure 11

The map page is the default navigation page (Figure 10). At the top of the page there will be navigational directions. These directions will indicate a cardinal direction that will take you to your destination (Waypoint).

To use the Compass Page for navigation (Figure 11), hit the Page Button and go to the *Compass Page*. The arrow in the center of the compass serves as the bearing pointer, which directs you to the destination waypoint. The navigation page also informs you that you are 0.14 miles from the waypoint. At your current speed (0 miles/hour), you will reach the next destination in approximately 4 seconds and 4 seconds.

To stop navigating press the Menu button and select *Stop navigation*.

## ***Finding (navigating to) a Waypoint that was defined by someone else***

You may need to navigate to a Waypoint that was defined by someone else (i.e. a landowner or other constituent, a county official, a fellow extension agent or fellow extension specialist). This person may have used a different GPS receiver (or even model) and may therefore provide you with coordinate information (or, you can also obtain coordinate information off of a Geographic Information System or other map).

Obviously, your GPS receiver cannot navigate you to a coordinate pair (i.e. lat./ long, UTM, etc.) if the coordinates are not stored on your GPS receiver as a waypoint. However, you can create a waypoint by **manually entering coordinate information** (i.e. lat/long., UTM, etc.) into the GPS receiver.

To create a waypoint by manually by entering its coordinates, follow these steps:

1. Press in and hold the Click-stick to access the *Mark Waypoint Page*
2. Using the Click-stick, highlight the *Location Field* on the *Mark Waypoint Page* (Figure 12).
3. Enter the new coordinates using the numerical keyboard on the screen. Highlight and press “OK” when finished.

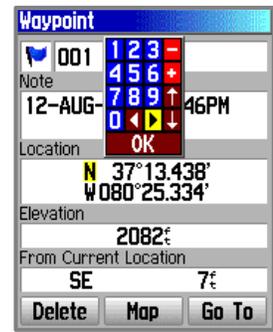


Figure 12

*Important Tip: In the United States, the first (latitudinal) coordinate will always have a “N” as a prefix (as we are north of the equator). The second (longitudinal) coordinate will always have a “W” as a prefix (as we are west of the prime meridian). In addition, the first digit after the “W” should be entered as a “zero” (see illustration above). It is very important to identify and select these prefixes when manually entering waypoints on your GPS!*

4. Once the Waypoint coordinates have been manually entered and saved, you can then use the “Go To” or *FIND* function (see previous page) to navigate to that waypoint!

## Application #4: Estimating Area Measurements

Estimating area measurements in the field is a necessary task for many application areas including business planning, forestry, and natural resource management. This GPS receiver has the capability to estimate area measurements, even of curved and irregularly shaped polygons! The following procedure will not only generate area measurements, but will also provide perimeter measurements as well.

There are two techniques for estimating area measurements. These techniques include:

- The Track Log Method
- The Route Method

You will learn the Track Log Method since it is the most often used method.

### Estimating Area Measurements: The Track Log Method

As you travel the perimeter of an area, the eTrex Venture HC records track points and uses the resulting GPS track log to internally calculate the size of the enclosed tract. This method works well when you can reasonably transport the receiver directly along the boundary of the tract. [If swamps, lakes, cliffs, gorges, or grizzly bears get in your way, you may need to use the route technique as an alternative!]. The active track log can hold up to 10,000 points.

On small and irregularly shaped tracts of land, you might want to increase the track log interval - the frequency at which tracks points are recorded. Otherwise, you will lose accuracy when the receiver occasionally “cuts corners” as you travel the boundary. Go to: MAIN MENU > TRACKS > highlight & select Setup. The Track Log Setup page (Figure 13) will open, you have choices here. The default setting is Record Method: *Auto* (a combination of distance and time) and Interval: *Normal*. If you choose to keep the *Auto* setting, you can set the Interval to *More Often* or *Most Often* to increase the frequency of track points. Instead of *Auto*, you can choose to record by *Distance* or *Time*, each with its own Interval choices.

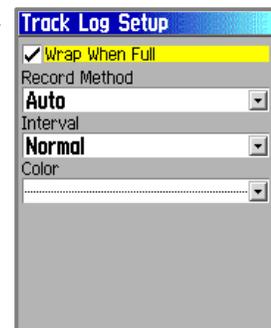


Figure 13

Follow these steps to estimate area measurements:

1. Generally you should clear the current active track log just before you begin laying tracks. Go to: MAIN MENU > TRACKS > CLEAR. [If you wish to save the previous track log, first select SAVE, then clear the log].
2. Push the Page button until you reach the *Main Menu Page* (Figure 13).



Figure 14

3. Use the Click-stick to scroll down and highlight the *Tracks* option.
4. Press the Menu button and select *Area Calculation*. The Area Calculation page should open (Figure 15).
5. The Area Calculation page will look very similar to the Map Page, BUT will have a *Start* option at the bottom (see Figure 16).
6. You may need to reset the Area Calculation. This is done by hitting the Menu button and selecting the RESET option.
7. Press <Start> and begin walking around the perimeter of the field/ parking lot / forest plot / etc. that you want to calculate an area calculation. The screen displays your progress. Zoom in or out as appropriate to view your tracks.
8. Slightly before you return to your starting point, click on STOP. Your receiver will **automatically complete** the loop with a straight shot from your current position to your starting point. The enclosed area value will be displayed in appropriate units. To change units, highlight and click on the unit abbreviation to bring up a selectable list of choices (square feet, square yards, square meters, hectares, square miles, etc.) (Figure 17).
9. To see the area calculation or if the calculated solution is of value to you, press <SAVE>. The Saved Track page will open (Figure 18).

*However, **before** you hit save, you should record the data elsewhere. Once a track log is saved, the total number of track points is condensed (to a maximum of 500). The Venture HC allows a maximum of 10 saved tracks.*

10. To view all of your saved tracks, go to: MAIN MENU > TRACKS.



Figure 15



Figure 16

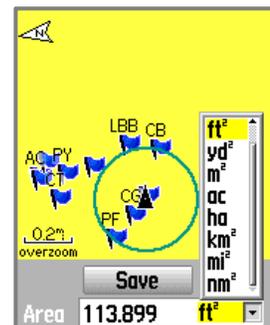


Figure 17



Figure 18