

Guidelines for Using a GPS on MLN Surveys

1. Garmin Etrex 10 GPS Unit- Overview

The Garmin Etrex 10 unit is commonly used. Other handheld GPS units have near identical functionality, although screen layouts and key buttons differ between units.

[NOTE: If no GPS unit is available an alternative is to use a smartphone. The free apps – [GPS Status & Toolbar](#) or [GPS Essentials](#) are recommended].

Device Overview



①	Zoom keys
②	Back key
③	Thumb Stick™
④	Menu key
⑤	Power and backlight key



⑥	Mini-USB port (under weather cap)
⑦	Battery cover
⑧	Battery cover locking ring
⑨	Mounting spine

Images from Garmin

2. Notes on basic GPS use and functions

What can you use a GPS for?

- Measuring location (latitude, longitude – elevation is also included) – this is termed **Waypoints** and is the most important function

Can I use my GPS anywhere?

- GPS units can work anywhere in the world, in any weather, 24 hours a day
- The basic units described here will give up to about 4-5 meters horizontal accuracy and 15-20 meters vertical accuracy
- GPS units will **not** work inside buildings
- If you use a GPS next tall buildings or in dense forest, you may get problems in receiving the signal
- Moving to a new location hundreds of kilometers away will usually result in an initial delay in getting a fix on satellite signals. A few minutes wait may be required in new locations.

What is the best way to use a GPS?

- Make sure the unit has two AA batteries installed – Alkaline are best
- Always write down location coordinates, elevation– even if you plan to download data
- Always use a GPS to record location data!

Is there anything else I should remember?

- Do not block the antenna (located just above the word “Etrex” on the front of Garmin GPS) with your fingers or head
- Always carry an extra set of two AA Alkaline batteries

3. Setting up your GPS for use (first use only)

Settings - This only needs to be done ONCE – upon receipt of GPS units, prior to use in field survey. After settings are complete, **NO** further changes should be made. Properly setting up your GPS helps to ensure that standard GPS settings are used in every country. Every effort is made to standardize GPS units before distribution.

Standard Settings Procedure

This can be done indoors, no satellite signal is needed

1. Switch on GPS by pressing **Power** key
2. Press **Back** key until the **Main Menu** screen appears



3. Use the **Thumb Stick** to select **Setup**
4. Press down on the **Thumb Stick** to open the **Setup Menu**
5. Use the Thumb Stick to select **Units**. Press down on the **Thumb Stick** to open the **Units Menu**. The **Units** option contains the key settings that you should check / change. Set Distance and Speed to **Metric**. Set Elevation to **Meters**
6. Use the **Back** key to return to main menu. Use the Thumb Stick to select **Position Format**.

The required Position Format settings are:

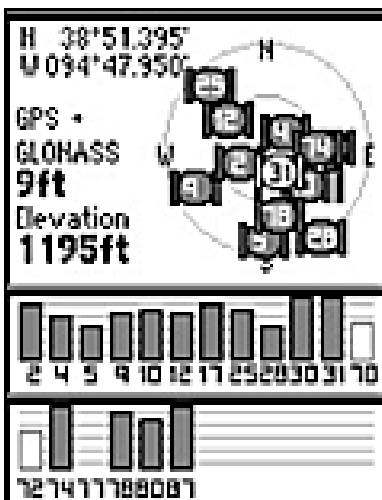
Position Format: **Hddd.ddddd°** [this means that latitude / longitude coordinates are given in decimal degrees]
Map Datum: **WGS 84**
Map Spheroid: **WGS 84**

7. Use the **Back** key to return to main menu.

4. Using a GPS for field survey

1. Turning on the GPS and getting a satellite signal

1. At the field location. Switch on GPS unit by pressing the **Power** button
2. Press the Back button until the Satellite page is visible



3. Wait for 2-3 minutes for the GPS to get a location fix using the satellites overhead.
4. Once a fix has been obtained, satellite symbols and signal strength bars will turn black. Once signals from at least 4 satellites have been received, Latitude and Longitude data (and GPS accuracy) will be displayed. Once latitude and longitude are displayed and accuracy is 10m or less, you can now record the location.

Note 1:

- *The first time you use a GPS in a completely new region it can take up to 5+ minutes to receive satellite signals. After initial use, signal reception will be much faster – about a minute or less.*
- *The more satellites you receive signals from the more accurate will be the location. So it is worth waiting a short time before recording a location. However, the maximum accuracy possible with these units is +/- 4 or 5 meters. Anything less than 10 meters is good enough.*

2. Recording and storing a location – “Marking a Waypoint”

There are two ways to do this:

Option A: Via the Enter Key

1. Press and hold the **Thumbstick**. This will make the **Waypoint** page appear – showing a 3 digit waypoint number, latitude, longitude, elevation
2. Record the **Latitude** (N or S), **Longitude** (E or W) and **elevation** data on the survey form
3. Select **Done**, and press **ThumbStick** to record and save the waypoint

Option B: Via the Main Menu

1. Press the **Back** key until the **Main Menu** appears.
2. Use **ThumbStick** to select **Mark Waypoint**
3. Press **Enter** key to open **Mark Waypoint** page
4. Record the **Latitude** (N or S), **Longitude** (E or W) and **elevation** data on the survey form
5. Select **Done**, and press **ThumbStick** to record and save the waypoint



3. Turning off the GPS

1. After recording the location (“Marking the Waypoint”), switch off GPS – press and hold **Power** key
2. Complete the *MLN Survey Form* and sampling
3. Move to next survey location