

SARG Guide

Surrey Amphibian and Reptile Group



SARG GPS User's Guide



Steve Langham

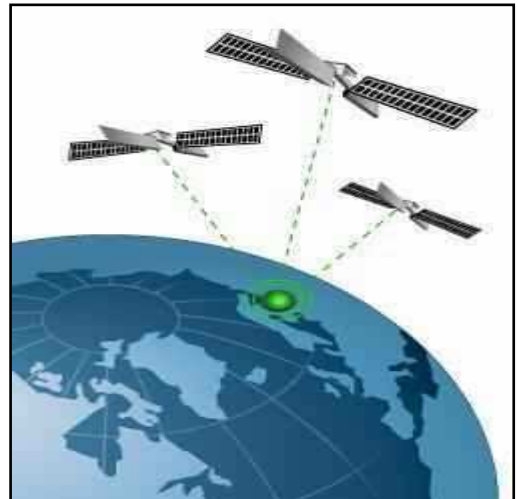
SARG GPS User's Guide

1. Introduction

- 1.1. A Global Positioning System (GPS) hand-held device (or unit/receiver) is an immensely useful navigation tool for reptile and amphibian survey. This guide aims to help the new user to focus onto the essential functions, and goes on to describe how to use a GPS unit with the SARG website.
- 1.2. When specific examples are used in this guide, they will be applied to the *Garmin eTrex H* GPS unit, which is the standard SARG issue GPS. Most other Garmin models will have very similar steps, and all GPS units will adhere to the same general principles.

2. How GPS works – the basics

- 2.1. A GPS unit (or receiver) is a combination of a radio and a clock. The unit picks up radio signals from any of the 27 GPS satellites orbiting the Earth that it can see, and by measuring the relative time taken for the signals to reach the unit it can work out how far the unit is from each satellite.



- 2.2. The unit must be able to receive signals from at least 3 satellites to obtain a 2-dimensional fix (such as your location on a map). Generally, the better view you have of the sky, the more satellites your unit can see, and the more accurate and reliable your fix. Buildings and trees can block these radio signals, so the rule of thumb is: the more sky you can see by eye, the better your GPS fix.

3. The useful functions

- 3.1. There are only 2 essential GPS functions to help with your survey work:
 - *Where am I?* (to record the location of an observation)
 - *How do I get to a known location?* (such as a tin or the car!)
- 3.2. To do either of these things usefully, first we need to set up the GPS. This is a one-time job; the GPS will remember the settings.

4. Setting up your GPS unit

4.1. The key setting for your GPS unit is the datum. This is *essentially* the grid reference system that you wish to use. Almost all ecological recording in the UK (and all SARG recording) uses the Ordnance Survey of Great Britain grid system.

4.2. First we need to define terms for the few buttons on the unit itself.

4.3. Press and hold the On/Off button until the unit switches on.

4.4. Now press and release the PAGE button, until the *MENU* screen is visible. Use the DOWN button until *SETUP* is highlighted, then press the ENTER button, which should take you to the *SETUP* menu. Use the DOWN button again, but this time highlight the *UNITS* box. Press the ENTER button to get to the *UNITS* menu. (see images below).



4.5. Now we need to change two entries, so:

- *POSITION FRMT* = *British Grid*
- *MAP DATUM* = *Ord Svy GB*.

4.6. Select each of these boxes using the UP and DOWN arrows, pressing the ENTER button to choose values. When you see the list of values, use the UP, DOWN and ENTER buttons to select the values above.

4.7. Now press and release the PAGE button, until you are back to the main screen. That's it!, your GPS unit is now set up for OSGB grid references.



5. Function 1 – Where am I ?

- 5.1. Press and release the PAGE button until you see the *MENU* screen.
- 5.2. The *MARK* box is probably already highlighted, if not use the UP or DOWN buttons to make sure it is highlighted, then press the ENTER button.
- 5.3. You will now be on the *MARK WAYPOINT* screen. The OSGB grid reference is shown at the bottom of the screen. Ignore the *ELEV*: number, this is elevation above ground level. Also ignore the *BNG* letters, this just means that you have British National Grid selected.
- 5.4. Your OSGB grid reference consists of 2 letters and 10 digits. The first 5 digits are eastings, the second 5 digits are northings. It is usual to leave a space after the letter, and between the sets of numbers like this: **SU 83241 48787**.
- 5.5. If you are writing down the grid reference, you can just press the PAGE button to return to the main screen. If you wish to save this location as a 'waypoint', then press the ENTER button. The waypoint name is written in the flag symbol. If you want to change the name (to, say CAR1), then press the UP button to highlight the name and press ENTER. Remember to then go back to the OK box and press ENTER again.



6. Function 2 – Finding a location (waypoint), such as a tin

- 6.1. Let us assume that you already have a waypoint saved on your GPS and you want to get to its exact location. If not, you could create one as described in section 5, or download tin locations as described in Annex B.
- 6.2. Press and release the PAGE button until you see the *MENU* screen.
- 6.3. Use the UP or DOWN buttons to highlight the *WAYPOINTS* box, then press the ENTER button.
- 6.4. On the *WAYPOINTS* menu, you can use the UP and DOWN buttons to select groups of waypoints, beginning with the letter groups in the tabs. To move onto the waypoint list, press ENTER, to return to the tabs, press PAGE. If you are within a kilometre or two of your waypoint, it may be better to select the *NEAREST* box and press ENTER. This will give you a list of waypoints in order of closest first.
- 6.5. Highlight your chosen waypoint and press the ENTER button. This takes you to the *REVIEW WAYPOINT* menu, and the *GOTO* option is probably already highlighted. If not, highlight *GOTO* and press the ENTER button.
- 6.6. You will now see the navigation screen, which has a drawing of a compass. The waypoint name is at the top of the screen, and the number below that is how far you are from it. The third line is an estimate of how long it will take you to get to the waypoint.
- 6.7. The arrow on the screen will point the direction you need to walk in order to get to the waypoint, however; there are two vital rules to follow!
 - When you are stationary, the GPS does not know which way you are facing, the arrow ONLY points in the correct direction when you are moving. It may take 10 paces for the direction arrow to become accurate. If you stop, the arrow will wander off course.
 - The GPS doesn't know how you are holding the unit, so it assumes that you are holding the screen facing vertically upwards, and the top of the unit is pointing in the direction that you are walking.
- 6.8. Keep walking at a steady pace, glancing at the GPS unit occasionally to ensure that your direction of travel aligns with where the arrow is pointing. If you are walking in the correct direction, the distance to the waypoint will decrease. When the distance drops to zero, you should be standing at the waypoint.



7. Annexes – Downloading waypoints from SARGWEB

- 7.1. The SARG refugia database holds the location of more than a thousand reptile survey tins across Surrey, Hampshire, Sussex and Berkshire.
- 7.2. There are two steps to downloading refugia waypoints. Firstly, you need to download and install the free GPS application *EasyGPS*. This is a one-time action, and once set up, the process should work flawlessly. Step two involves downloading waypoints from SARGWEB to your PC, then uploading these waypoints to your GPS unit.
- 7.3. You will require an internet connection, access permissions for SARGWEB and a cable that connects your GPS to your home computer.

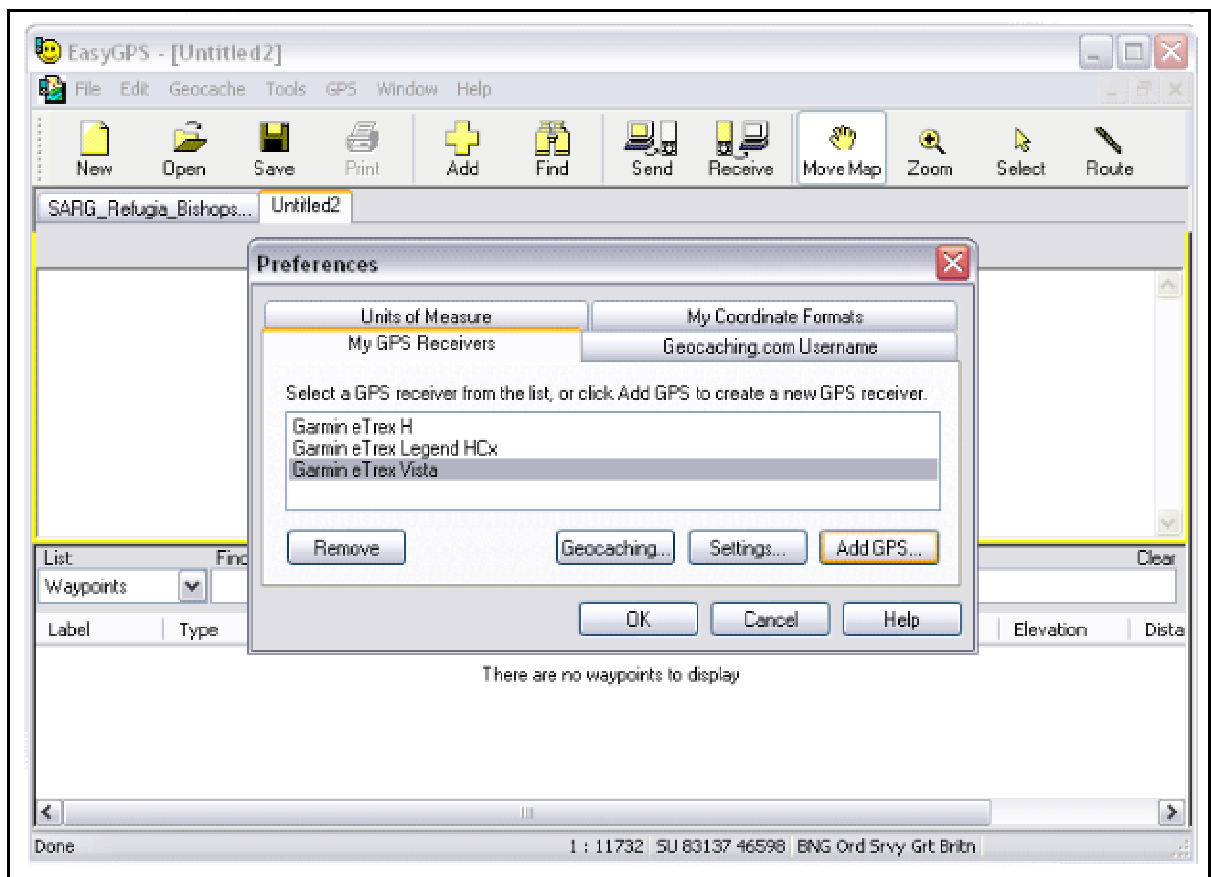
Annex A – Deals with installing the EasyGPS program.

Annex B – Describes how to transfer waypoints from SARGWEB to your GPS

Annex C – Shows you how to open a GPX file in EasyGPS with a double-click.

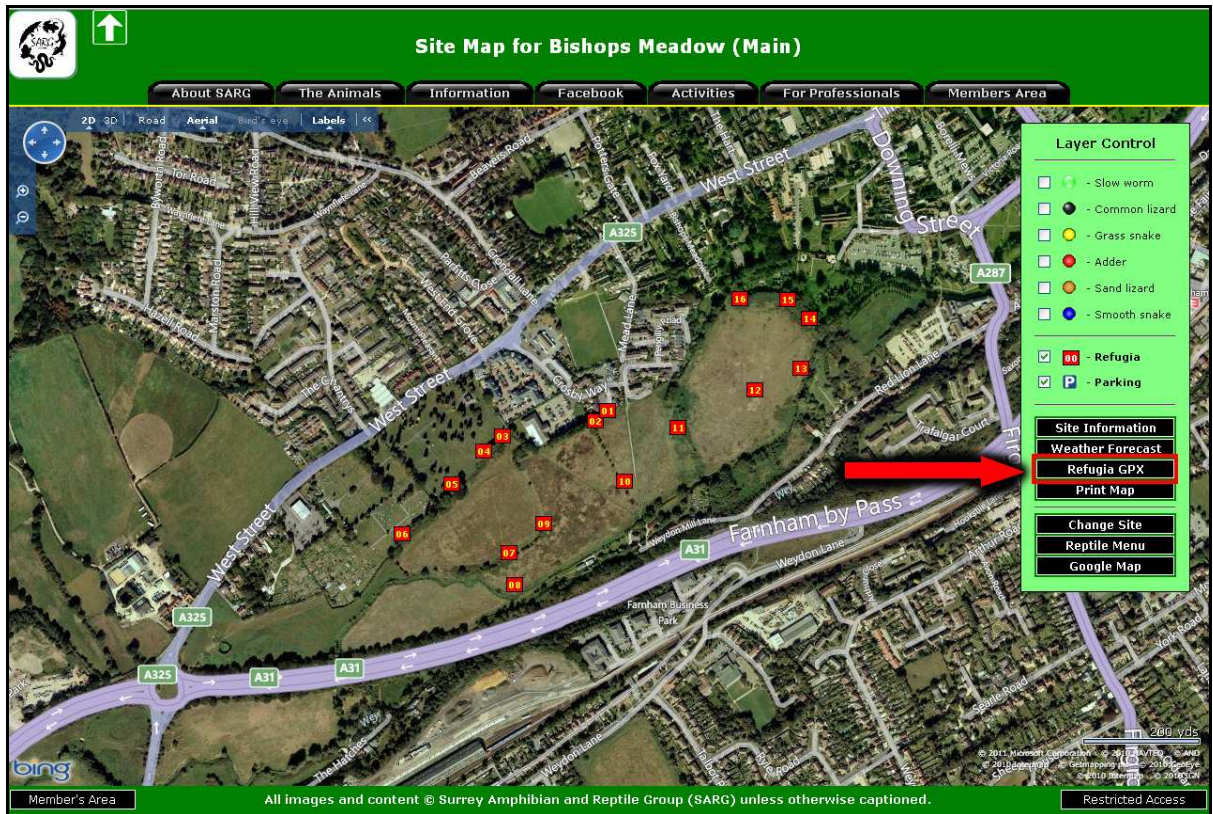
Annex A – EasyGPS

- A1. Download and install EasyGPS from this link:
<http://www.easygps.com/download.asp>
- A2. Once installed, run the EasyGPS application and plug in your GPS unit to the PC via the connection cable. We now need to set up the connection to your GPS unit. Under the [Edit] menu, select [Preferences]. Click the [Add GPS...] button and select your make and model. You will then need to select the connection (either USB or a Serial port), and perhaps the connection speed. If unknown, choose a BAUD rate of 9600.
- A3. Now you have set up the connection, we need to check to see if the GPS unit and the PC can talk to each other. Still using the EasyGPS application, under the [GPS] menu, select the [Display GPS information...] option. If this comes up with an error message, then something is wrong. Check that the cable is attached to both the GPS and the PC, and that the GPS unit is switched on.



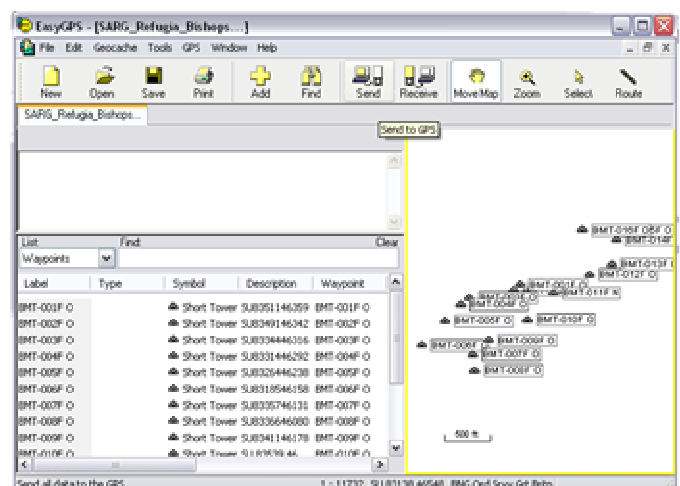
Annex B – Transfer waypoints from SARGWEB to your GPS

B1. Reptile surveyors need to log into the members area of SARGWEB and click on the [*Reptile Survey*] icon. Then click on the [*Reptile Sites*] icon. Click on the county of interest, then select your chosen survey site from the list, ordered by county district. You should see a map similar to the one shown below.



B2. Clicking on the button labelled [*Refugia GPX*] will allow you to download a text file in GPX format to your PC. Save the file somewhere you can easily remember, such as the Desktop. It is possible to automatically start the EasyGPS application by clicking this button, see annex C for details.

B3. Open the EasyGPS application and open the GPX file you have just downloaded. You should see a simple map of waypoints. Make sure your GPS unit is connected to your PC by the appropriate cable, and turned on. Click the [*Send*] icon on the EasyGPS application, and your waypoints will be uploaded to your GPS. Simple!



Annex C – Associating GPX files with EasyGPS

- C1. By associating GPX files with the EasyGPS application, you can simply click on any GPX file, such as those downloaded from SARGWEB, and the file will automatically open the EasyGPS application and load.
- C2. This is not an essential step, but does save a bit of time if you are frequently transferring waypoints between the SARG database and your GPS unit.

Windows XP

- C3. Open Windows Explorer, and navigate to any .GPX file. Right-click on the file and choose the [*Open With*] option. Do not choose EasyGPS if you see it, instead select [*Choose Program...*].
- C4. You may now select, or browse to the EasyGPS application, but make sure you tick the [*Always use the selected program to open this kind of file*] box. Click [*OK*] and you're done.

