

## BGRI Stem Rust Survey Protocol

### Overview of Field Survey Procedure

- 1. Ensure survey team have all items on check-list before departure**
- 2. Travel to 1<sup>st</sup> survey location**
- 3. At survey location switch on GPS**
- 4. Wait until GPS receives satellite signals – Status equals “Ready to Navigate”**
- 5. Record location with GPS – “Mark a Waypoint”**
- 6. Fill location (latitude and longitude) and elevation details on survey form**
- 7. Switch off GPS**
- 8. Carry out survey for stem rust, fill in survey form**
- 9. Collect stem rust sample(s), place in sealed survey envelope and record data on envelope**
- 10. Move to next survey location – approx. 20km away from 1<sup>st</sup> location**
- 11. Repeat steps 2 to 10**
- 12. At the end of each survey day. Survey team leader checks survey forms and sample data.**
- 13. Within 7 days of completing survey. Survey team leader makes copy of survey forms and sample data envelopes, then mails or delivers original forms and samples to National Focal Point.**

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### Field Survey Checklist

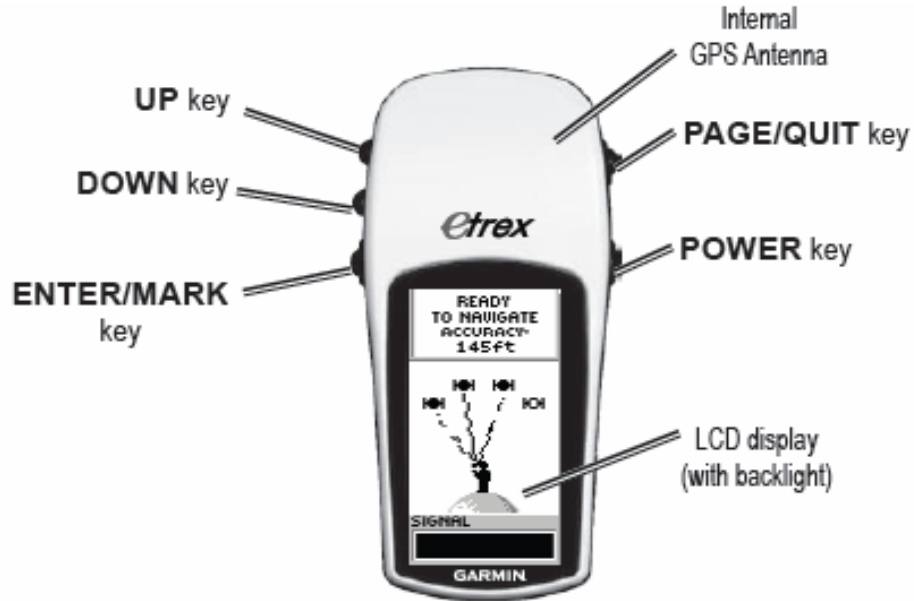
**Prior to starting field survey work, field survey teams should have following:**

- **Pre-printed field survey forms (sufficient number plus spares)**
- **Pre-printed sample collection envelopes (sufficient number plus spares)**
- **Pencils (at least 3 per team member)**
- **GPS unit (1 per team) – With standard settings for units**
- **Spare AA batteries (at least 4 per team)**

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## Using GPS for Field Survey

### Garmin Etrex H GPS Unit – Overview



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### Notes on Basic GPS Use and Functions

#### What can you use GPS units for?

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

GPS units work anywhere in the world, in any weather, 24 hours a day. The basic units described here will give up to +/- 4 or 5 meters horizontal accuracy and 15-20 meters vertical accuracy.

#### Using a GPS

##### General - Do's and Don'ts

##### Do's

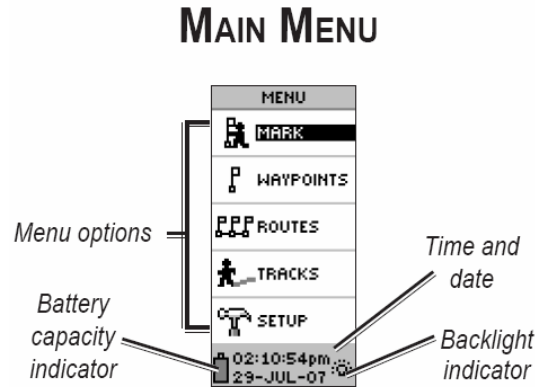
- Make sure the unit has batteries installed – 2x AA (+ always carry spare batteries!)
- Always write down location coordinates, elevation and waypoint number – even if you plan to download data
- Always use a GPS to record location data!

##### Don'ts

- Use a GPS indoors – it will not work!
- Use a GPS next to tall buildings or in dense forest – you may get problems in receiving the signal
- Use a GPS with your fingers or head covering the receiver – the area just above the word “Etrex” on the front of Garmin units. This will also block the signal.

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1. **Ensure Standard GPS Settings are used [NB: 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]**
- **Standard Settings Procedure: [NB: This can be done indoors, no satellite signal is needed]**
  - a. Switch on GPS by pressing **Power** key
  - b. Press **Page** key several (4) times until the **Main Menu** screen appears



- c. Press the **Down / Up** keys to select **Setup**
- d. Press the **Enter** key to open the **Setup Menu**
- e. Press the **Down / Up** keys to select **Units**. The **Units** option contains the key settings that you should check / change.
- f. Use the **Enter** key to select a category, then the **Up / Down** Keys to select the correct option within a category. Finally, press **Enter** key to save change.
- g. Repeat step f for each Units category

The required Units settings are as follows:

Position Format

**Hddd.ddddd°** [this means that latitude / longitude coordinates are given in decimal degrees]

Map Datum

**WGS 84**

Distance/Speed

**Metric**

Elevation

**Meters**

Vertical Spd

**m/min**

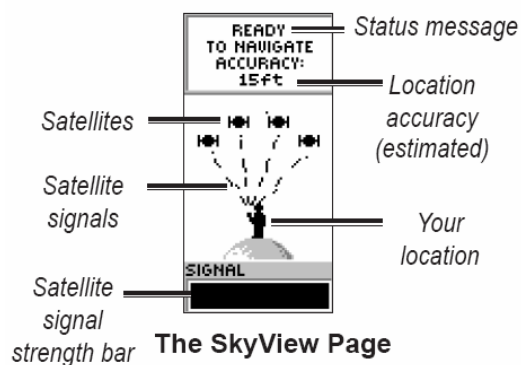
Depth

**Metric**

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### 2. Recording a Location in the Field – “Marking a Waypoint”

- At the field location. Switch on GPS unit by pressing the **Power** button
- Wait for 2-3 minutes for the GPS to get a location fix using the satellites overhead.
- Wait until the unit is **Ready to Navigate** – this means that it is receiving signals from at least 4 satellites. [*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 – 1-2 mins or less.*]  
[*Note 2: 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 and anything less than 10 meters is good enough.*]



- To Mark a Waypoint (record and store a location), there are 2 options:

#### Option A: Via the Enter Key

- Press and hold the **Enter** key. This will make the **Mark Waypoint** page appear – showing a 3 digit waypoint number, latitude, longitude, elevation



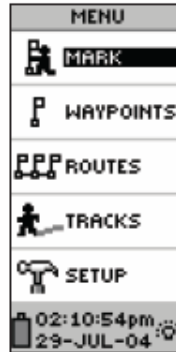
#### Mark Waypoint Page

- **Record the Waypoint number, Latitude (N or S), Longitude (E or W) and elevation data on the survey form.**
- Select **OK**, and press **Enter** key to record and save the waypoint

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### Option B: Via the Main Menu

- Press the **Page** key several times until the **Main Menu** appears.
- Use **Up / Down** keys to select **Mark**



*Menu*

- Press **Enter** key to open **Mark Waypoint** page



**Mark Waypoint Page**

- **Record the Waypoint number, Latitude (N or S), Longitude (E or W) and elevation data on the survey form.**
- Select **OK**, and press **Enter** key to record and save the waypoint

### End Note

1. After recording the location (“Marking the Waypoint”) switch off GPS – press and hold Power key.
2. Undertake stem rust survey and sampling
3. Move to next survey location