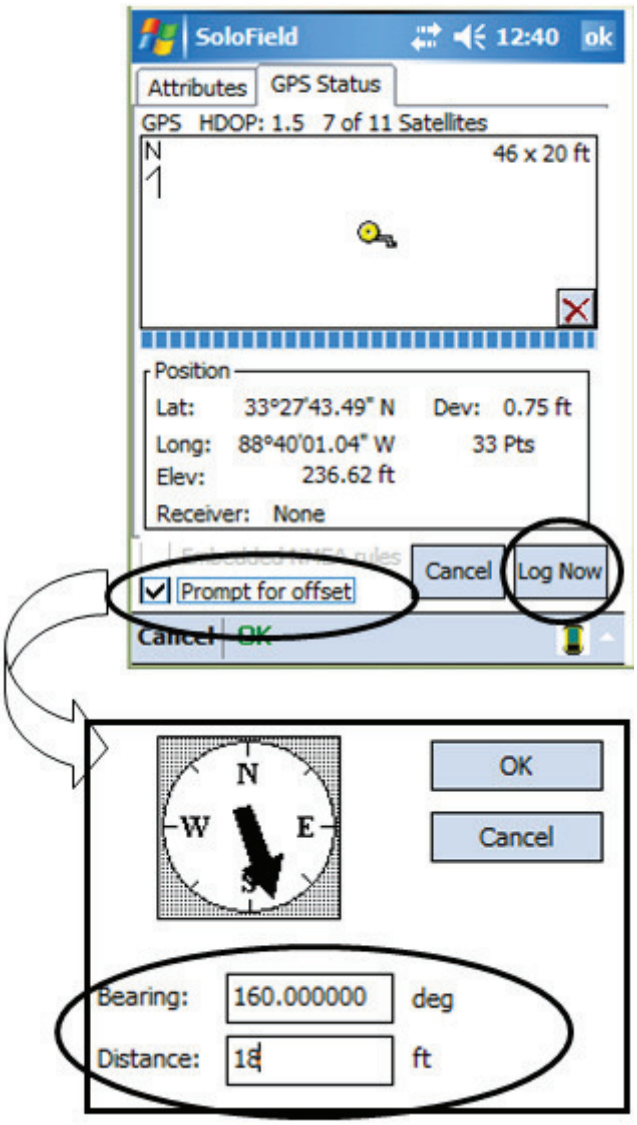
5 Advanced SoloForest

5.1 Offsetting GPS Features

One of the strengths of Solo Forest is the ability to easily offset any position that you are collecting. This comes in handy when it is difficult to physically occupy a corner because of debris or on the other side of a huge ditch! Also, if your corner is a large tree, it is faster and more accurate to move away from the tree and collect positions where your GPS has a better view of the sky and apply an offset.



To Offset a Point:

1. **Check the Prompt for Offset Box** on the bottom of the Static logging screen.

2. When you have enough positions logged and the Deviation is acceptable, click ***Log Now***.

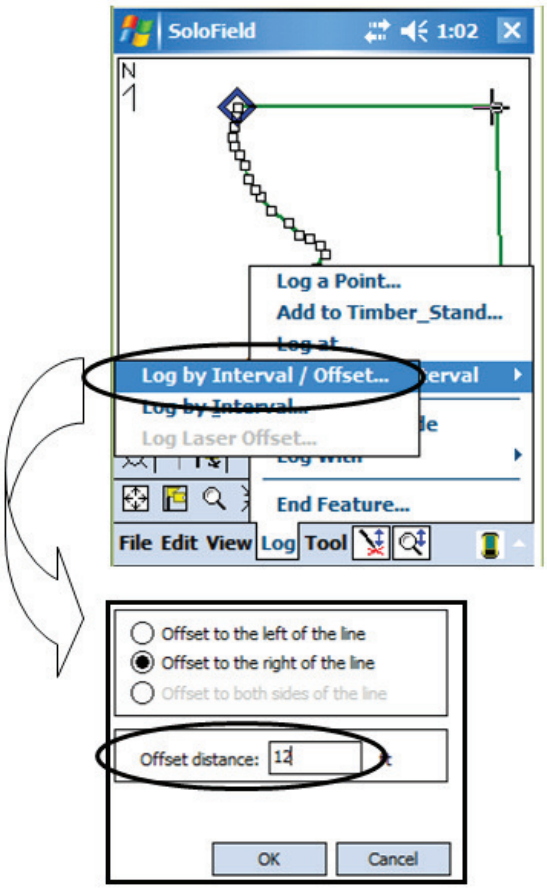
3. Next **enter the correct Azimuth** (from your compass) **and Distance** on the Point Offset Screen and then press ***OK***.

Offsetting Lines and Areas

Lines and Areas can also be offset using Solo Forest. This will allow you to map a stand boundary without having to walk exactly on the boundary when there are obstructions. Using the offset feature you can walk parallel to the stand boundary on a fire lane or road instead of on the exact boundary.

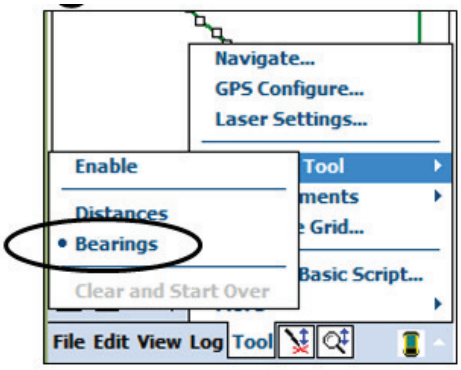
To Offset a Line or Area:

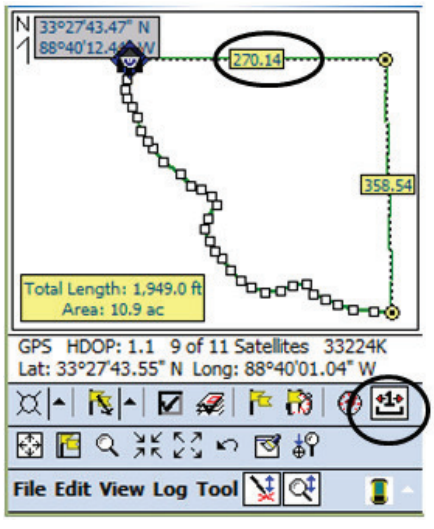
1. Select ***Log > Log Offset / Interval > Log by Interval / Offset…***
2. Select which side of you the line or area will be offset (ie. You are the line).
3. Enter the Offset distance and press ***OK***.
4. Choose the appropriate feature from the feature list start logging on the Log Dynamically screen



5.2 Measure Tool – Calculate Bearings

The measure tool will allow you to measure distances or bearings between points just as we measured distance. This can be done by selecting ***Tool > Measure Tool > Bearings***.

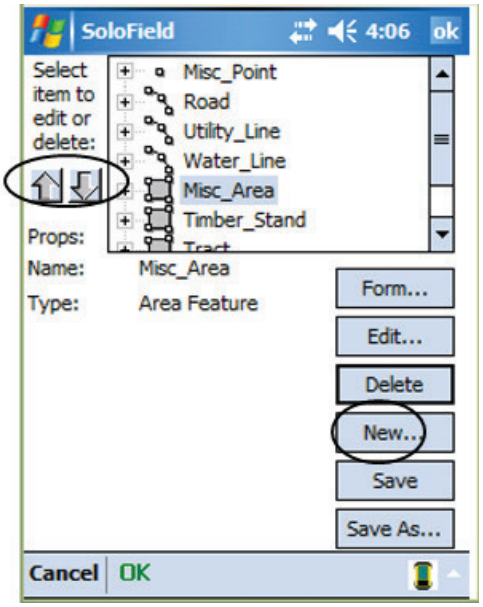




Then after selecting the Measure tool, the bearings will be displayed as you create line segments. This tool will also work if you have your Stylus set for Manual XY or Stylus Selects Logged Data.

5.3 Feature Files

It is very easy to Edit or Add features to the feature file in Solo Forest directly on the handheld. Select ***File menu > Feature Codes*** to get to the feature codes window.



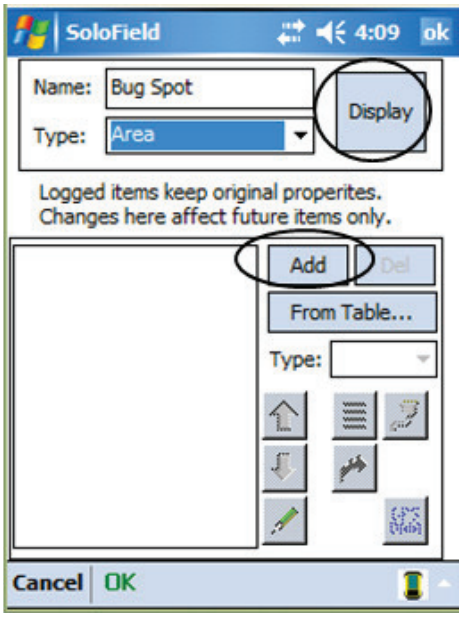
- Change the order of any feature by highlighting it and clicking the Up or Down arrows.
- Expand the Feature to see all of its Attributes by clicking the + sign beside it.

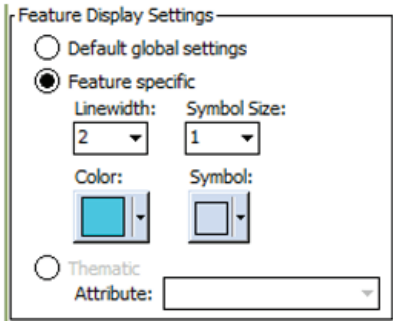
To Add a new Feature:

1. Choose ***New…. button***

2. **Enter** the **Feature Name** and select the **Type.**

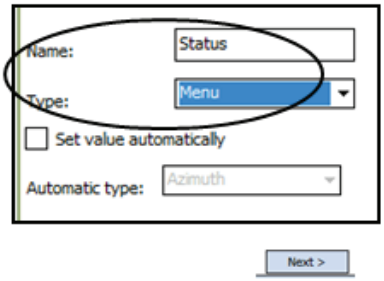
3. Click Display to **edit the display settings** of the new feature. Click ***OK***.



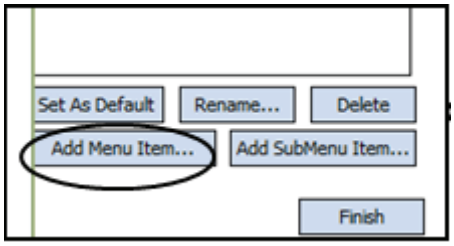


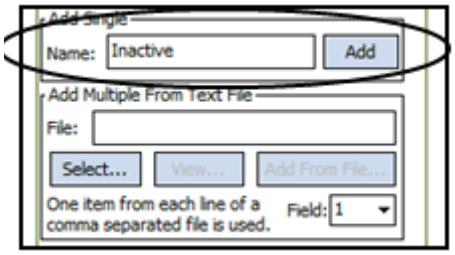
4. All Features must have at least one Attribute. Click the ***Add button*** to **add a new Attribute.** Attributes can be menus, numbers, dates, or text.

5. ***Enter the Attribute name and Type***. Don't forget the Attribute asks the question. We will create a dropdown menu here. ***Click Next***.

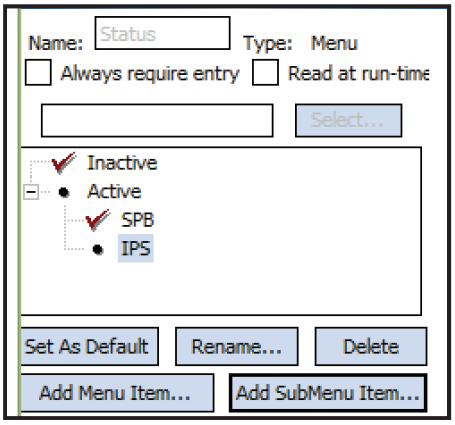


6. Click ***Add Menu Item***… to create the Value that answers the Attribute question. Enter the Value name (Inactive) and click Add.





7. **Repeat this process** to enter all of the values and even subvalues for this attribute. Click ***Finish.***

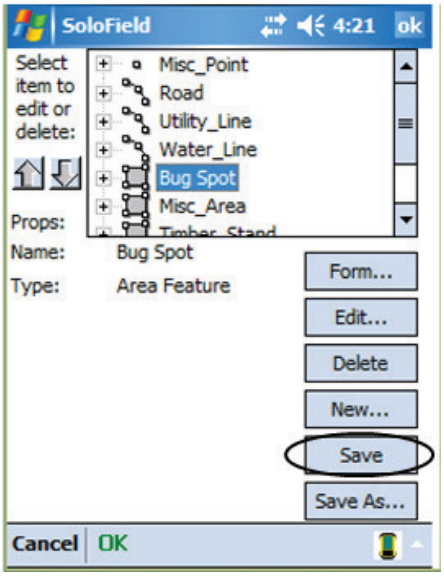


8. Click ***Add*** again to **add another Attribute** to your new feature, or click ***OK*** if you only want one.

9. Note that the new feature is added to your list and will be available to select from on the All screen when you Log data.

10. You may need to reorganize your features using the Up and Down arrows.

11. Save the new feature list by clicking ***Save***, or in some cases, ***Save As***.

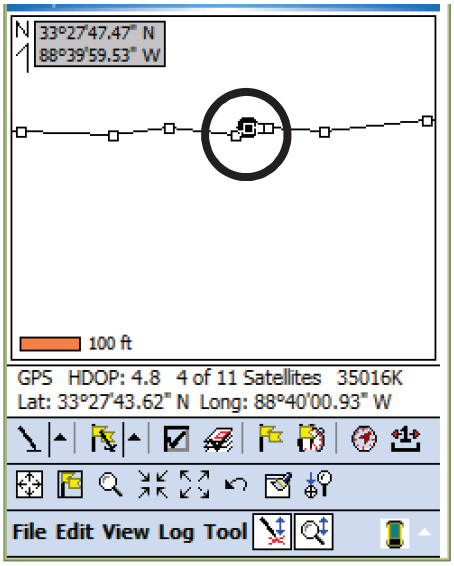


5.4 Log At

SoloForest allows you to log a position at the exact same location as another. This is handy when you are mapping roads and want to tie them together at one common position so there is no under or overlap. Another example is when you want to join the boundary of an SMZ to a Timber Stand feature with no slivers.

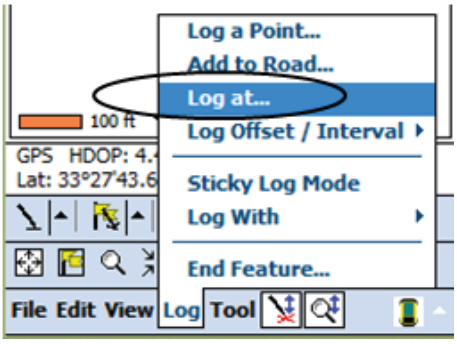
For this example, we will connect a spur road to a main road:

1. When you are mapping the main road, slow down anytime you come to an intersection so that you have nodes to tie to.

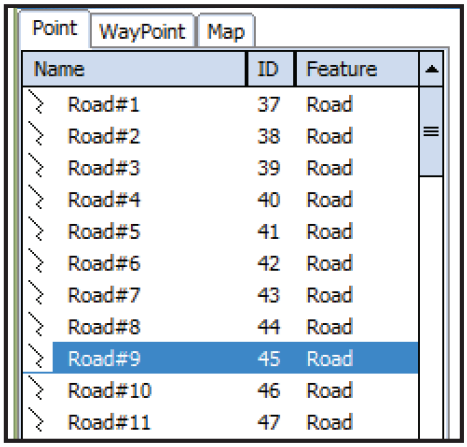


2. Select the node on the main road that you wish to join the spur road to.

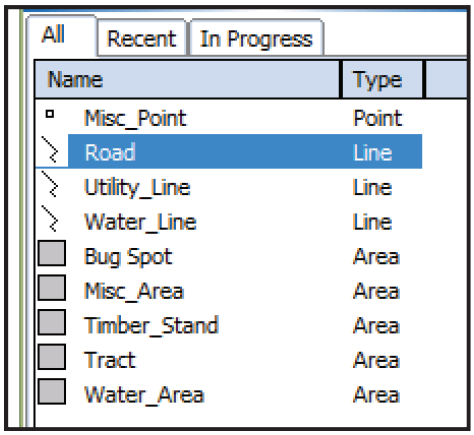
3. Select ***Log > Log at…***



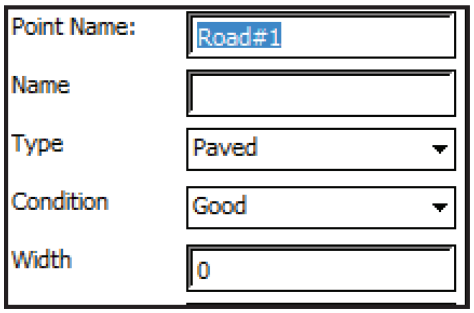
4. Solo Forest shows you the point you selected. Click ***OK***.



5. Go to the ***All Tab*** and select the **Road Feature.**

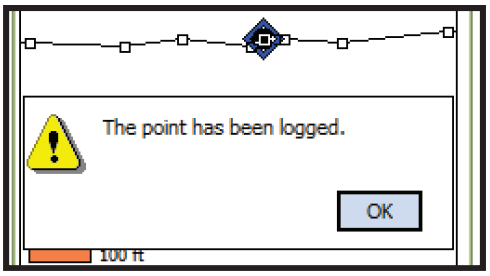


6. Enter the correct attributes for the new Road and click ***OK***



7. The new point is logged.

8. To **continue logging the new road**, select Flag with a Stopwatch and select the newest road in the In Progress tab.



5.5 Basemaps

What Kinds of Basemaps Can I Use in Solo Forest?

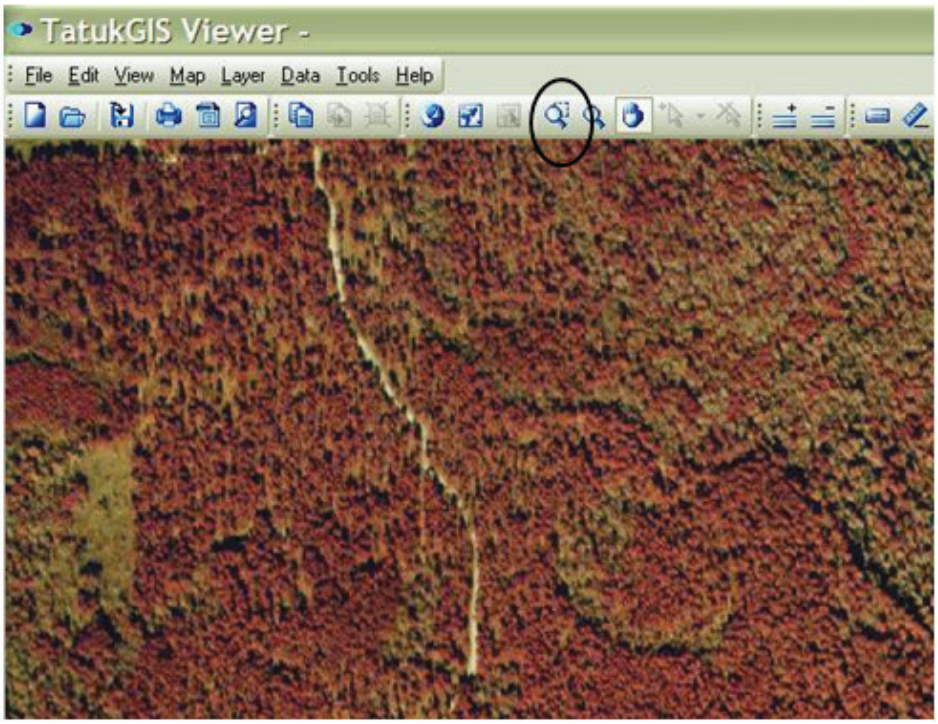
- Vector Data (Point/Line/Area)
  - ArcView Shapefiles
  - AutoCAD DXF files
  - MapInfo MIF files
  - SoloForest UDF files.

- Raster Data (layers with pixels)
  - DOQQ's - orthorectified aerial photos in which distortions and displacements are removed.
  - DRG's - scanned images of USGS Quadrangle maps (topo maps)
  - Other raster images in .tif, .jpg, .doq, JPEG2000, ECW, or .sif format.

- Note: MrSID images are not supported but can be converted to geotiff format by using TatukGIS Viewer, or a .sif format in SoloOffice.

5.6 Clipping Raster Basemaps Using TatukGIS Viewer

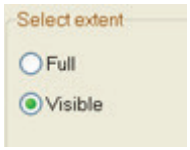
1. **Get the TatukGIS Viewer program running** on your computer by downloading/installing from the LandMark Spatial Solutions website under ***Support > Software Updates/Free GIS Mapping Programs***
2. **Open the Program** and **create a New Project**.
3. **Add a Layer -** Next, click ***File > Add Layer*** or click the ***Add Layer button***  on the toolbar and navigate to the folder on your PC where your basemap photos are stored. Click on the image of your choice (the file type can be .sid, .tif, .img, or .jp2) and press ***Open***.
4. **Zoom to the area of interest** using the Zoom Window button  (click and drag a diagonal box and let go). NOTE: the smaller the area, the more efficiently you will be able to zoom in and out in SoloForest.

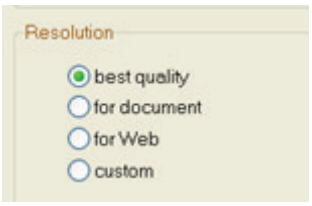


5. **Export the Image** by clicking ***File menu > Export to Image*** and then
   a. Select the directory to store the new image
   b. Name the new file,
   c. Choose "Tag Image File Format (*.tif)" as the type

d. Save it.

6. **Save the image Options:**
   a. Select Visible extent
   b. Select Best Resolution
   c. Check the estimated file size at the bottom of the Export to TIF window. Be sure the file size is < 20 MG so that it will be usable in Solo Forest.
   d. Press Save in the upper right. This will create 3 files; a .tab, a .tif, and a .tfw.
   e. Transfer only the **.tif** and **.tfw** files to your handheld for use in Solo Forest.



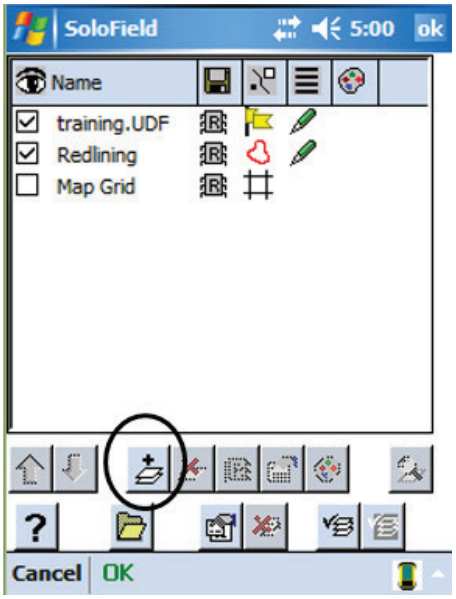


5.7 Loading a Photo or Topo in SoloForest

1. **Transfer the Basemap**
   a. Check the Image size and make sure you have storage space for it.
   b. Copy the image file along with any accompanying world files (ie. .tfw file) to your handheld. Save them on a Storage Card in in the ***My Documents\Basemaps*** folder.

2. **Match your Solo Project Settings to those of the Basemap** by clicking File menu > Settings > Zone tab. Adjust the Coordinate System, Horizontal Datum, and Zone. OK out when you are done. Note - Refer to section 4.4 for more info on Coordinate Systems.

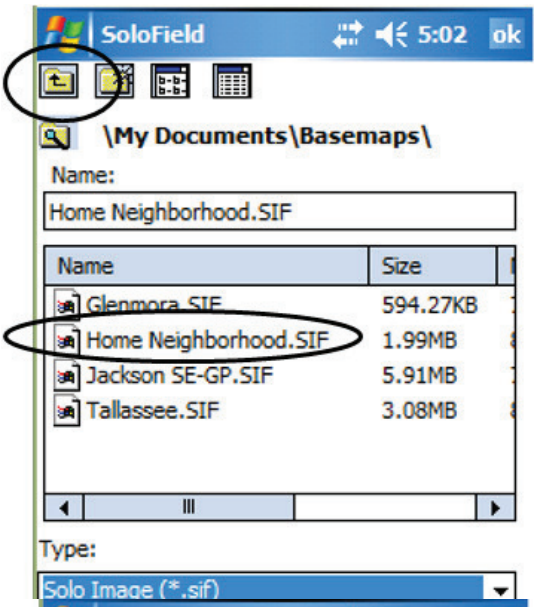
3. **Load the Basemap** – Click View menu > Map Layers > and choose the Add Layer button on the toolbar.



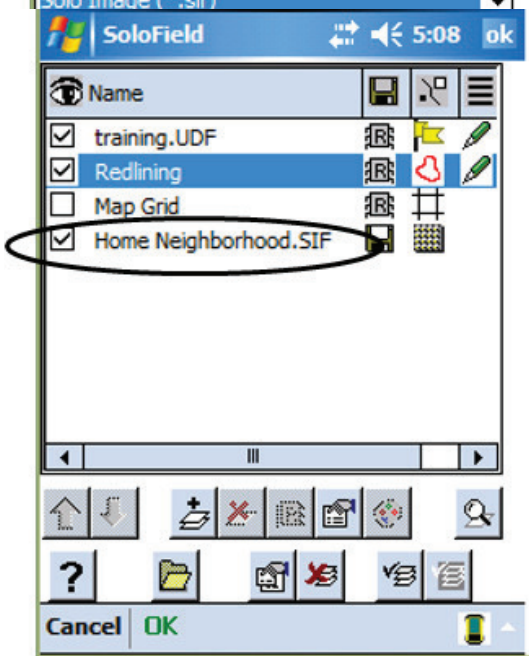
4. **Navigate to the Basemaps folder** where you stored your basemap. Use the  icon to go up a level.

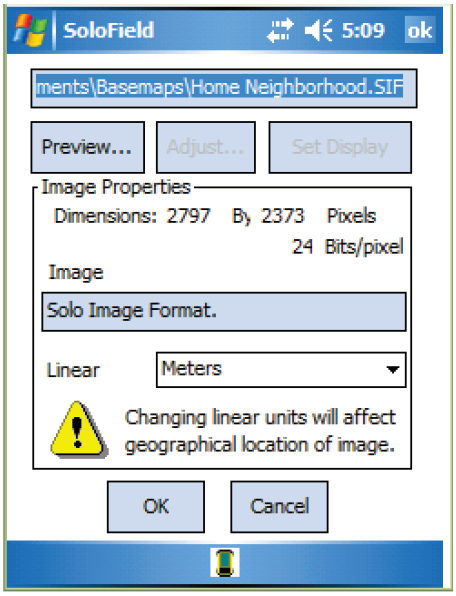
5. **Select the correct basemap Type** in the drop down list at the bottom.

6. **Select the desired basemap** from the Basemaps Images folder. For this example we'll choose the Home Neighborhood.SIF image and click ***OK***.

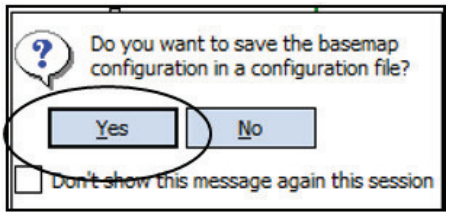


7. **Check the Layer Properties for the Image** - Back at the Map Layers screen, you will see that our image is now included in the list of layers. You can double click the basemap layer to get to the Layer Properties to check the Linear Units and make changes if necessary (Solo assumes photos are in meters). Press ***OK*** to Exit.

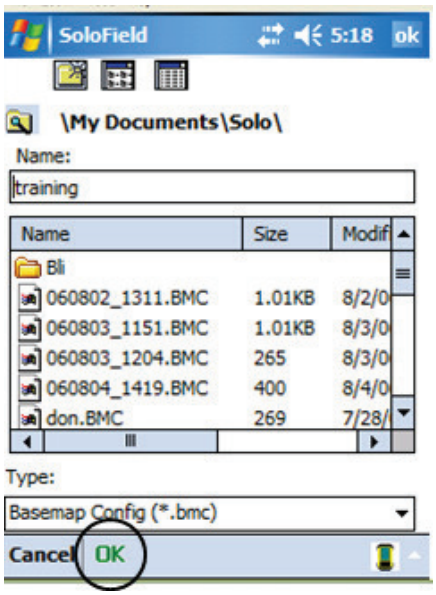




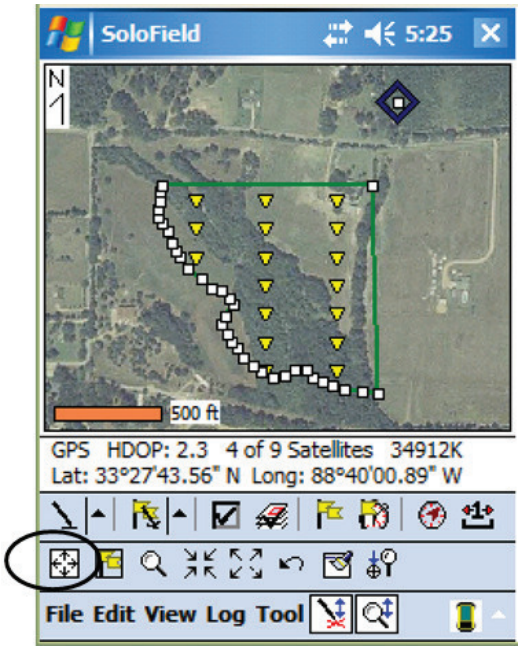
8. **Save the Basemap Configuration File** –
   a. Once you are finished adding and editing the image, select OK to close out of the Map Layers window.



   b. Click ***Yes*** and then ***OK*** when prompted to save the Basemap Configuration File. This will automatically load all of the basemap layers associated with this project the next time you load this .udf file.



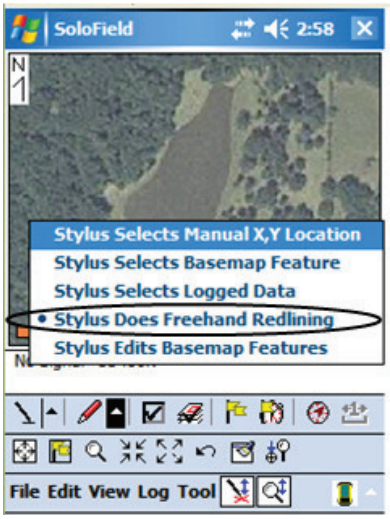
9. **Zoom to Everything** - Lastly, if you have your GPS going and are in the proximity of the basemap, it will automatically load underneath you. If, however, you do not have GPS going, you will see a blank screen and so you'll need to use the ***Zoom to Everything*** button to display the basemap layer.



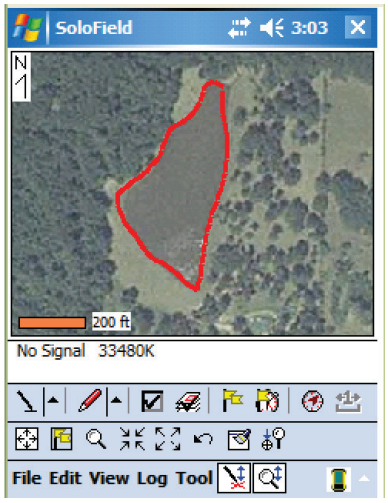
5.8 Freehand Redlining

Digitizing can be done 2 ways in Solo Forest. The first is Freehand Redlining. With this feature you can draw on top of basemaps, images, or logged data. You can also make notes on your map.

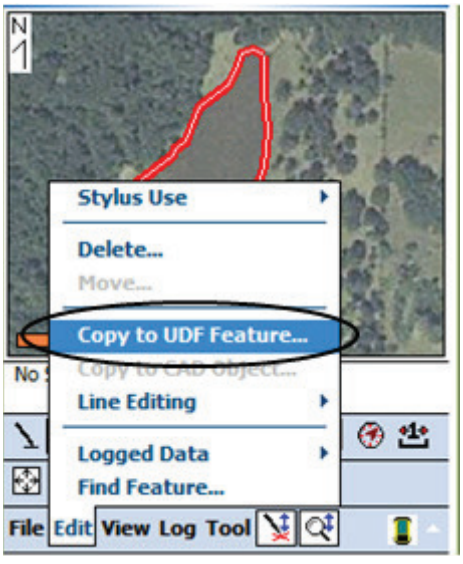
1. **Set your stylus to Stylus Does Freehand Redlining.**



2. **Draw a polygon on top of the basemap** without lifting your stylus. Do not try to close the polygon.

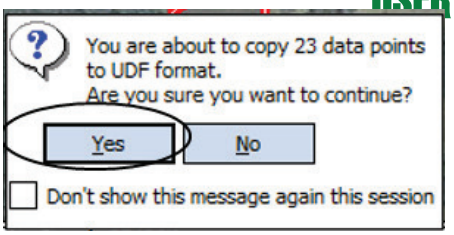


3. **Change the Stylus Use Stylus Selects Logged Data** and Select the Redlined Area. The redlined area will appear as a double line when selected.

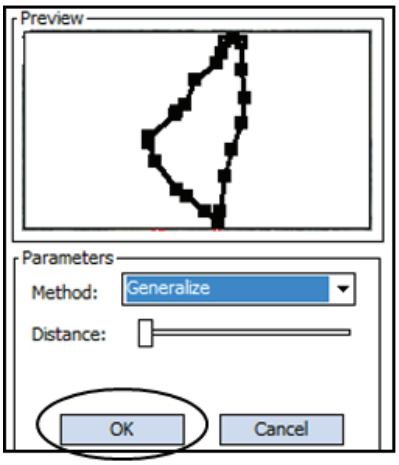


4. **Convert it to a UDF feature** by selecting the ***Edit menu > Copy to UDF feature***. Solo will show you what the feature will look like. Select ***OK***.

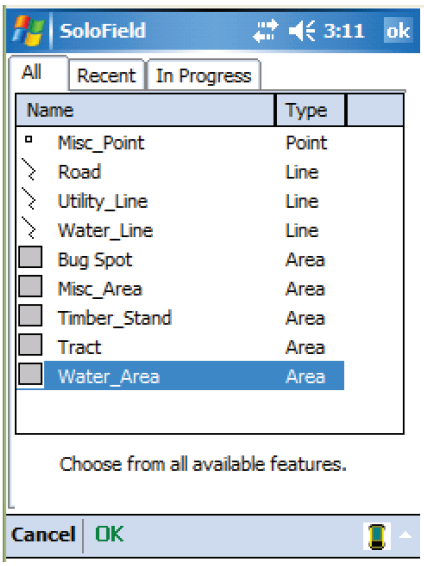
5. **Select *Yes*** to the question about continuing.



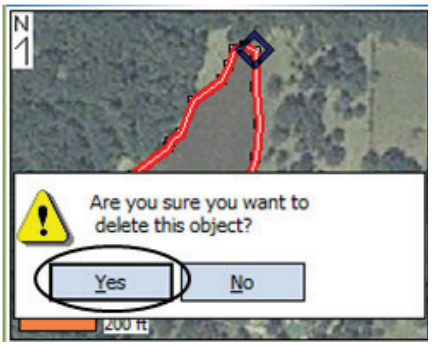
6. **Select *OK* on the Preview window**.



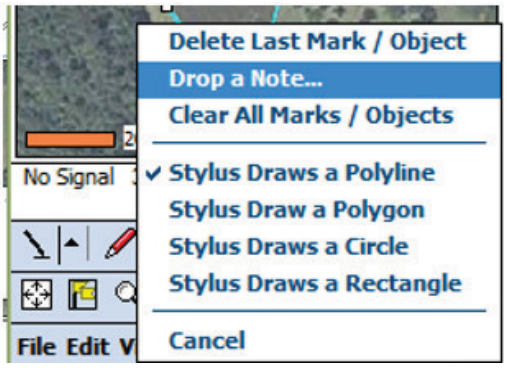
7. **Choose the feature to apply the reline geometry**. For this example we'll make the polygon a Water Area. You can then enter attribute info for that feature.



8. **Delete the redline** so we can better see the points that have been manually logged in the conversion. To do this, select ***Edit menu > Delete*** and then ***Yes*** while making sure that the redlined feature is still selected.



9. Be aware that Stylus Does Freehand Redlining gives you other options as well. Simply Tap the screen to:



   a. Drop a Note.
   b. Draw a Circle - to draw buffers around objects on the screen.
   c. Draw a Polyline, Polygon, or Rectangle.

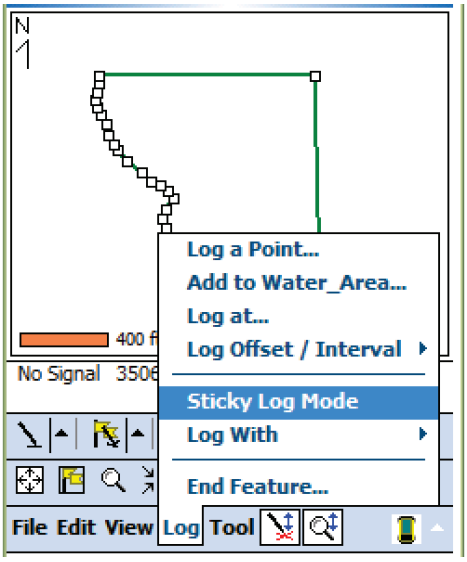
   Note that none of the redlined features will get exported to shapefile format unless you copy them to a UDF feature as described earlier. To delete the relines, simply tap the screen and choose ***Clear Last Mark*** or ***Clear all Marks.***

5.9 Sticky Log

Sticky Log is another manual logging technique that allows you to heads up digitize using your stylus. Depending on your Stylus Use setting you can snap to existing positions or create new positions with a screen tap.

Here a few uses of Sticky Log with Logged Data:

- Subset a stand into a smaller stand
- Fix GPS mistakes like making a big polygon out of 2 smaller ones
- In the case where you have 2 stands that share a common side, you can use Sticky Log to re-log a portion of the common boundary to keep from having to remap with GPS.



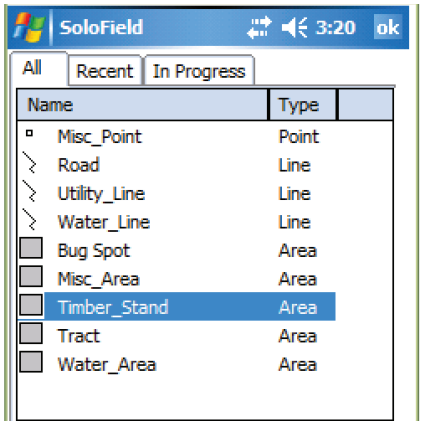
Sticky Log with Logged Data:

1. **Set Stylus Use for Stylus Selects Logged Data**

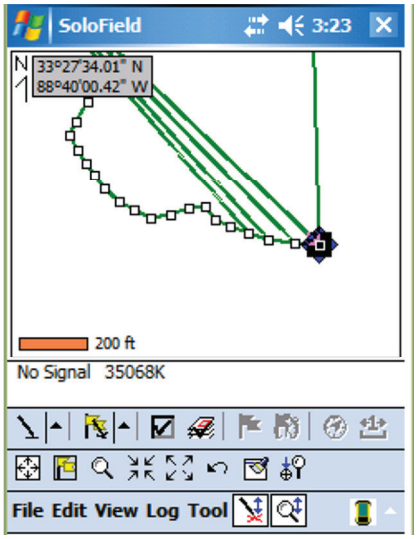
2. Select ***Log menu > Sticky Log Mode***.

3. Use your stylus to **select the node where you want to start your feature**. You will then be prompted to select the feature to log. For this example

choose a **Timber_Stand**. You will only be prompted for this info on the first point.

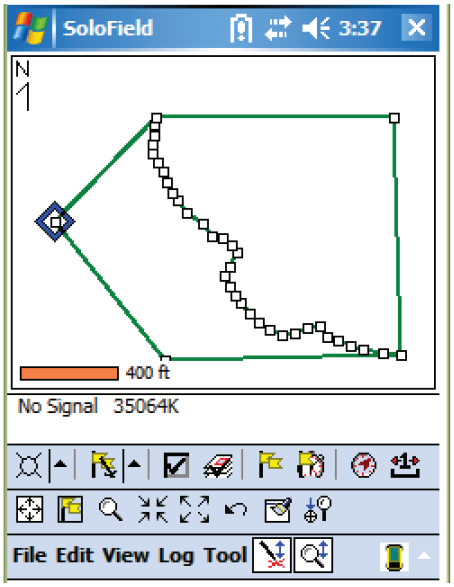


4. **Continue to click around the existing polygon** until you reach the end.



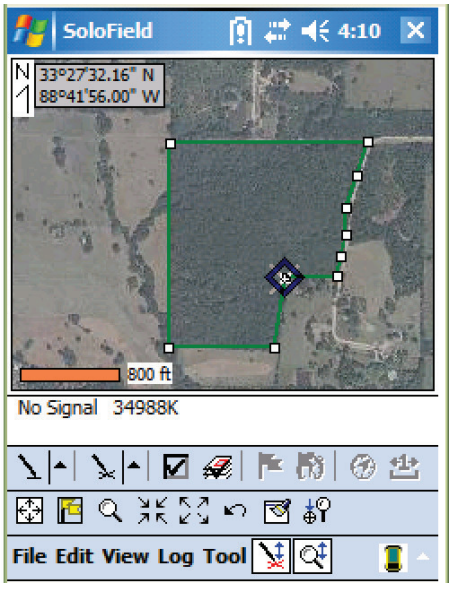
5. Select ***Log menu > Sticky Log*** to turn Sticky Log mode off.

6. Select either Log Static or Log Dynamic buttons to **finish logging the 2nd stand with GPS.**



Using Sticky Logging to digitize features from an aerial photo.

1. **Set Stylus Use to Stylus Selects Manual X,Y Location**.
2. Select **Log menu > Sticky Log Mode.**
3. **Tap position on the photo where you want to start.**
4. **Choose the feature to log from the feature list.**
5. **Continue to add positions to the feature**.



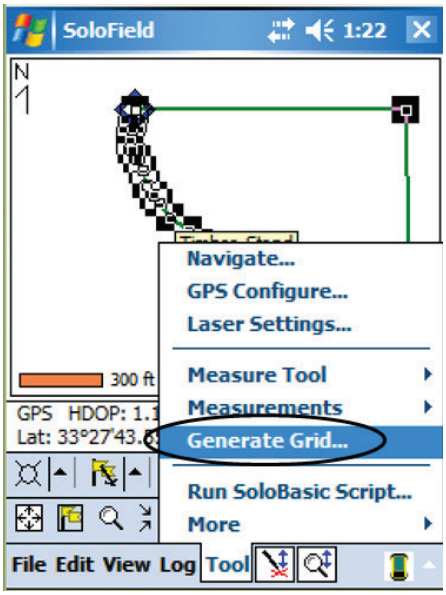
6. **Turn OFF Sticky Log** by selecting **Log menu > Sticky Log Mode**.

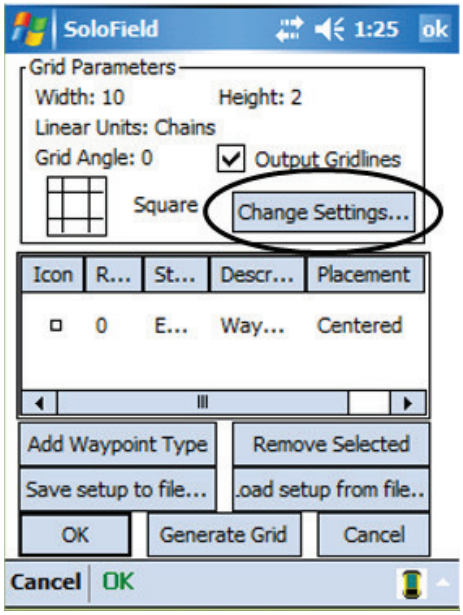
5.10 Generating Cruise Grids

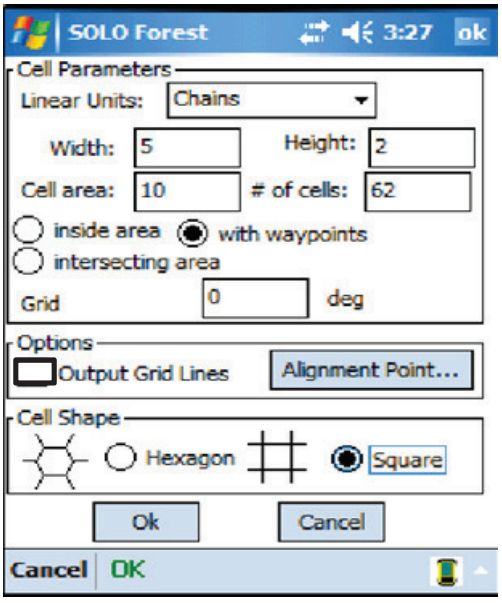
SoloForest can generate a grid inside a selected area feature or shapefile polygon. The grid points are saved as a waypoint file (.way).

To generate a grid (create a waypoint file) on a logged feature:

1. **Set to Stylus Use to Stylus Selects Whole Feature**
2. **Select a polygon**
3. Click **Tool menu > Generate Grid** or click the ***Grid Generate button*** on the Mode Toolbar.
4. Select ***Change Settings button***.
5. ***Set Grid Parameters***.
   - Linear Units = Chains
   - Width & Height = 5x2 for this example.
   - With Waypoints radio button.
   - Grid orientation = 0 degrees
   - Output Gridlines = **OFF**
   - Alignment point – None
   - Cell Shape = Square

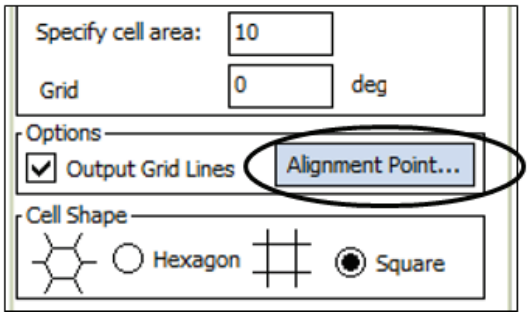






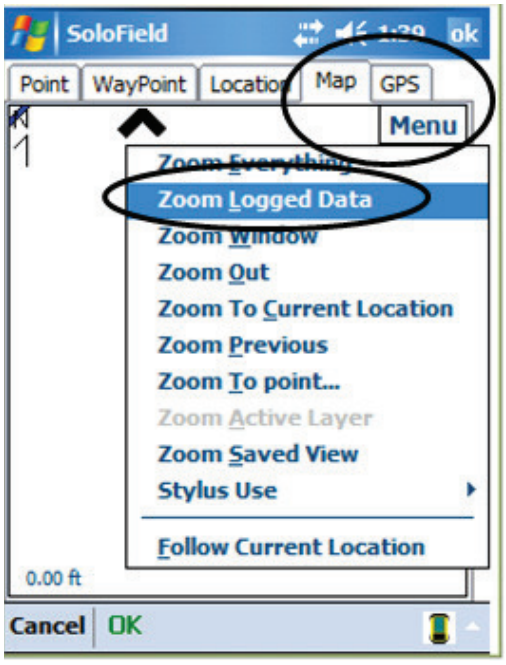
Other Cell Parameters Options

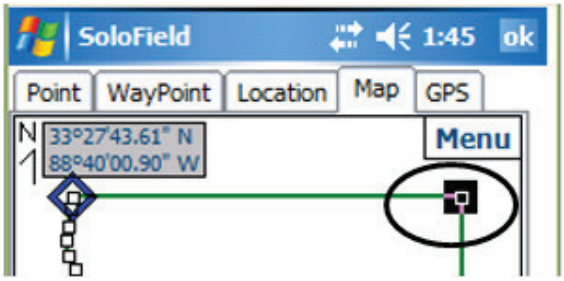
SoloForest allows you to force a specific number of waypoints within a polygon. Just double click in the # of Cells field and type in that number. Solo will compute a square grid spacing that will make that number of plots possible. Always use the With Waypoints option to ensure as many waypoints as possible will fall inside the polygon.



6. **Set an Alignment Point** (Optional)

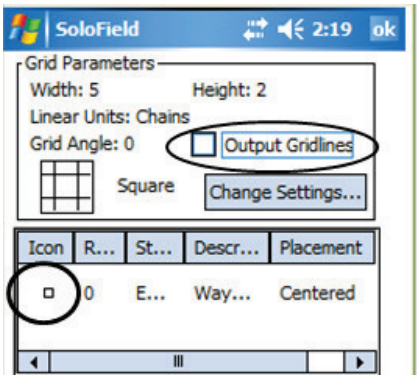
- Most foresters like having their cruise grid start at a known point such as a property corner. Their first plot would then fall half of the grid spacing up and half of the grid spacing inside the polygon. To accomplish this same methodology, click the ***Alignment Point button*** and choose an appropriate starting point to align the grid. You can click the ***Map Tab > then Menu >*** and Zoom out if needed.
- With your Stylus set to Stylus Selects Logged Data, you can now **select the Alignment point.**
- Lastly, select OK 2 Times.



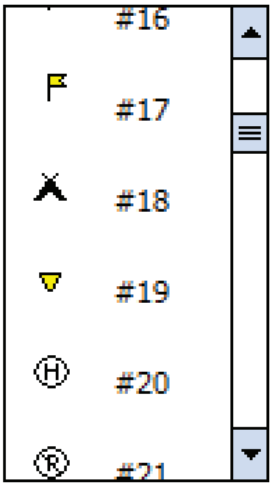


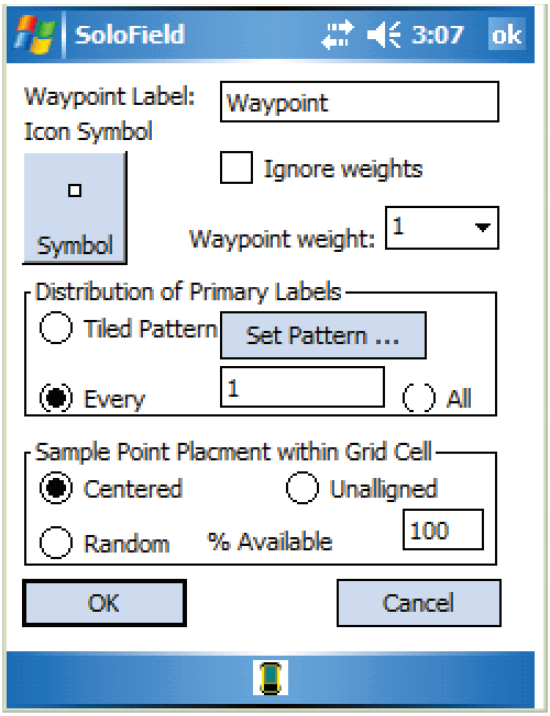
7. Back in the Grid Parameters screen, **Uncheck Output Gridlines**.

8. **Change the Waypoint Icon (Optional).** If you do not like the look of the default waypoint icon, you can easily change it by clicking on the icon.

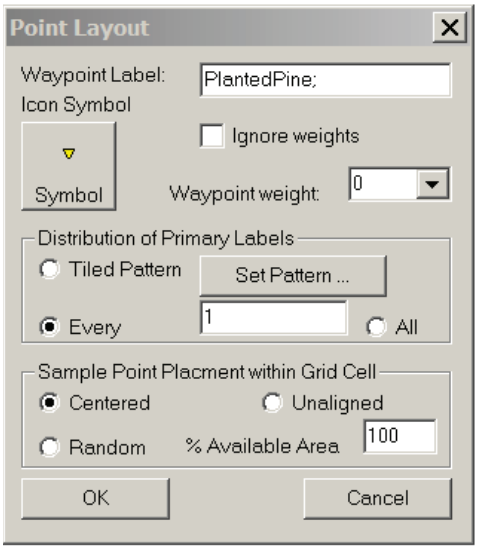


Click on the ***Symbol button***… and then **select a new icon**, like #19, from the list and click OK 2 times.



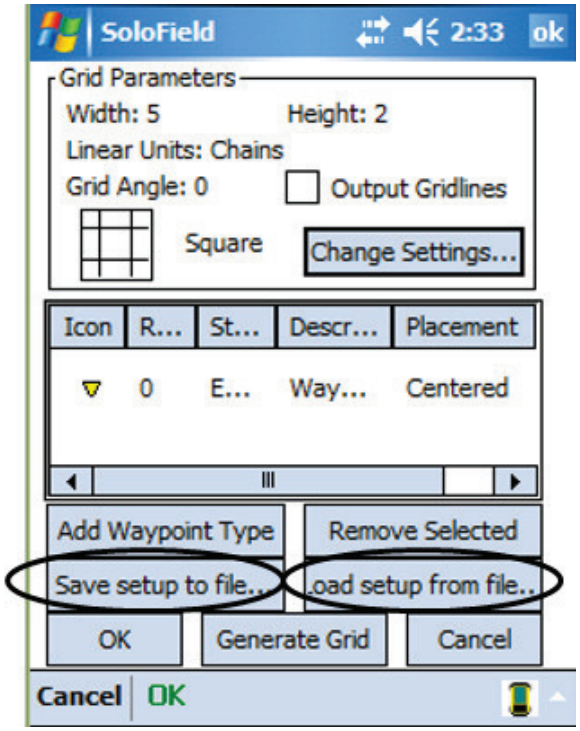


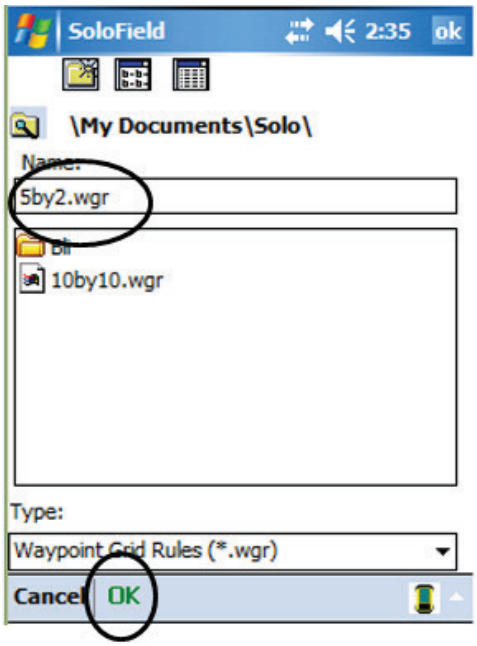
9. **Auto-stratifying Plots from Solo Forest (optional).** If you know the Stratum or Stand # of the polygon in which you are creating the grid on, then you can have Solo PUSH that ID to TCruise when you start using RTI. To do this, simply type in the Stratum or Stand # in the ***Waypoint Label Box***, followed by a ;.



10. Save a Waypoint Setup File (Optional)

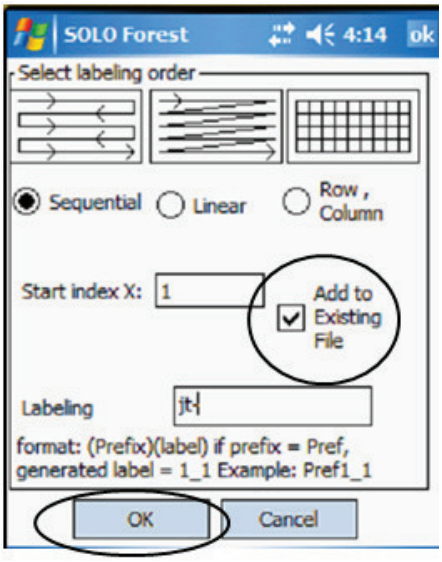
When you get back to the Grid Parameters screen, you can select Save Setup to File to save the Waypoint Settings and Icon Symbol you've just selected. Next, name your Waypoint Setup file something like 5by2.wgr and save it in the Solo folder by selecting ***OK***. You must include the .wgr file extension. Note: The next time you want to create that grid type select Load setup from file.





11. Generate Grid - When you get back to the Grid Parameters screen, select ***Generate Grid***. Next, select:

- Select Labeling Order
- Starting Index
- Labeling Prefix



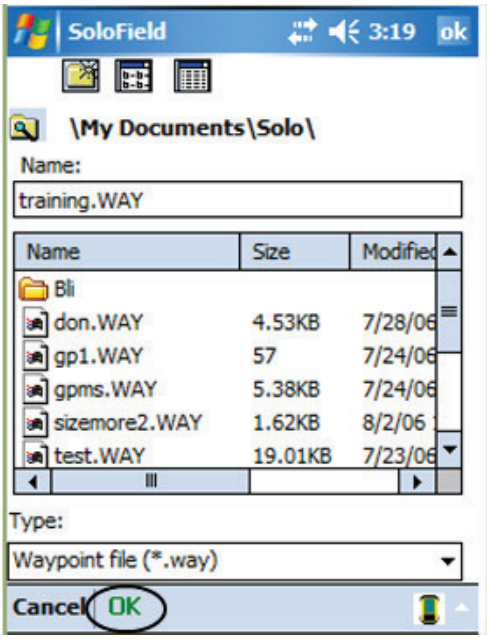
You can use the defaults or specify a different grid order, starting number, or prefix like "st1-". In this case the first plot will be labeled "jt-1". The second will be "jt-2", etc.

Notice the Add to Existing File box. If you select that box then you can add more waypoints into an existing waypoint file. This is extremely helpful if you want to cruise 2 different stands with different intensities. Be sure and have the starting index of the second grid be one more than the last grid point on the first stand.
Select ***OK*** to proceed.

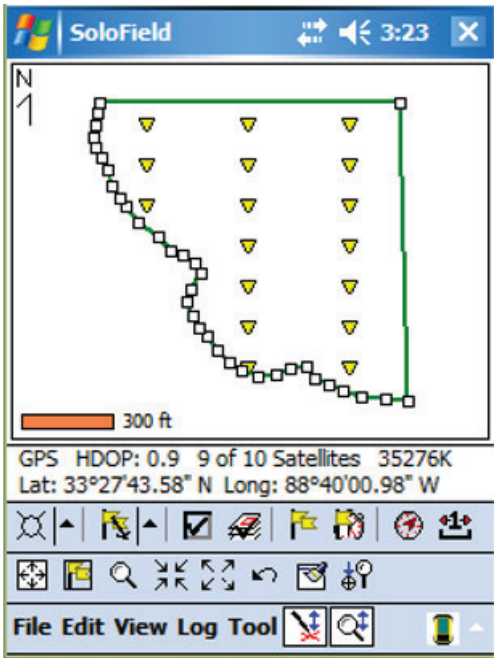
12. Name the Grid

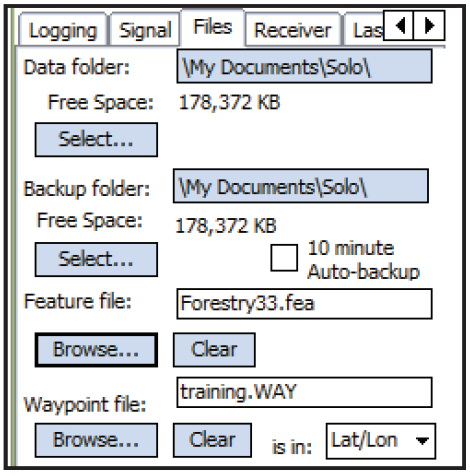
Next, you have to name the waypoint file. The default file name is based off of the project name. The storage location is in My Documents\Solo folder. If you are creating multiple grids for the same project, you may want to use different names.

Select ***OK*** tp proceed.



13. View the new grid.

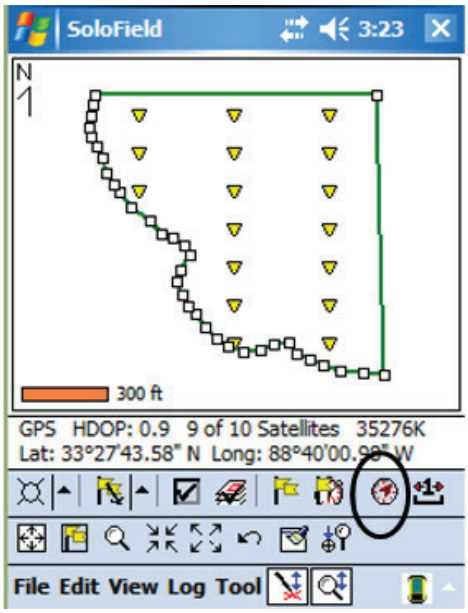


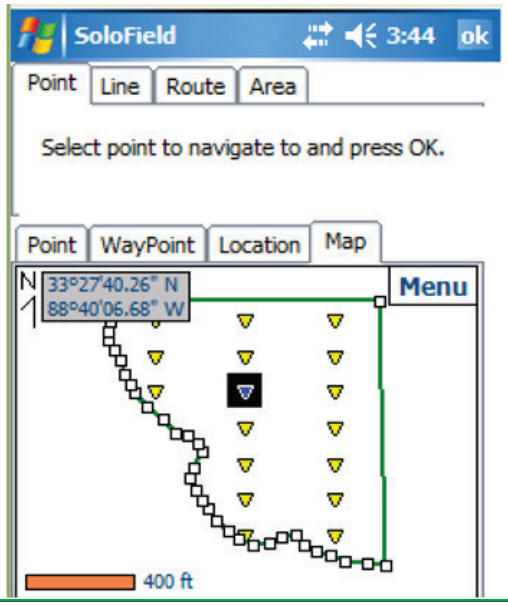


Note: If you want to load grids that were previously created click ***File menu > Settings > Files Tab*** and then ***Browse*** for the correct Waypoint file. You can also use the Clear button to clear the grid off of the screen.

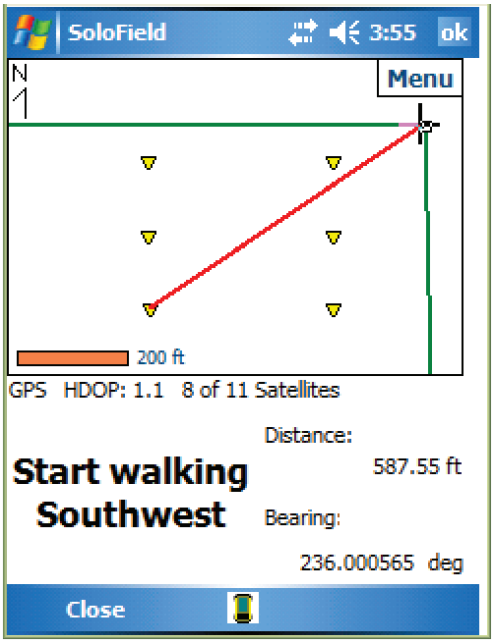
5.11 Navigation in Solo

1. **Set your stylus to Stylus Selects Logged Data**
2. **Select the Navigate Button** 
3. **Select a Tab and choose a point**.
   - Point tab– Navigate to a logged GPS location
   - Waypoint tab – Navigate to a specific waypoint.
   - Location tab– Enter and then navigate to a specific Lat-Long.
   - Map tab– Allows you to select a waypoint or waypoint on the map.

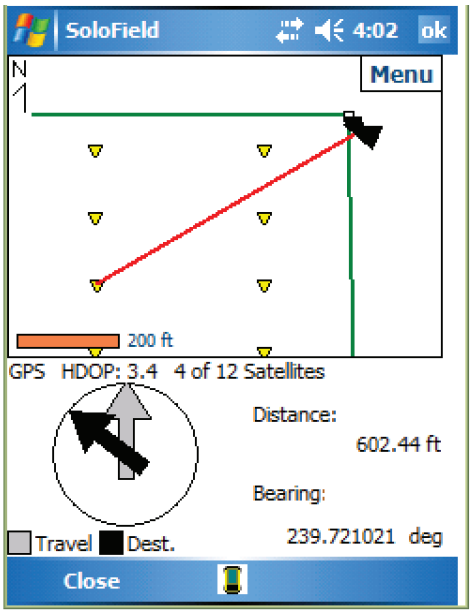




4. **Start moving toward the Point.**



5. **Align the Navigation Arrows.**
   When you begin moving two arrows will appear; one with your current direction and another with the direction of your destination. Align the two arrows to get on course.

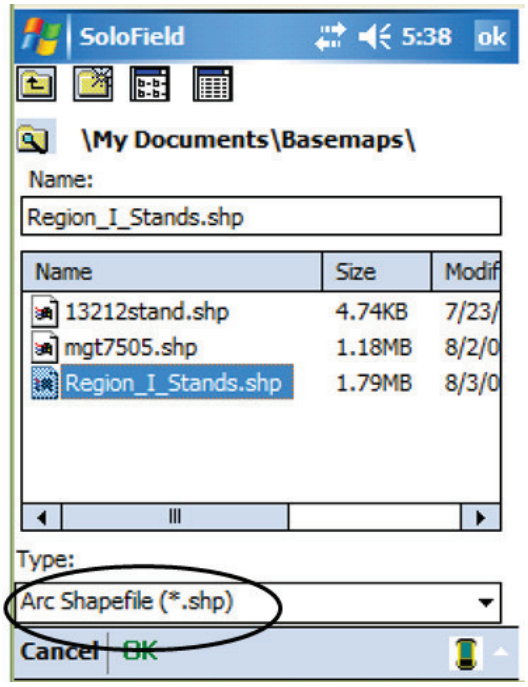


5.12 Working with Shapefiles

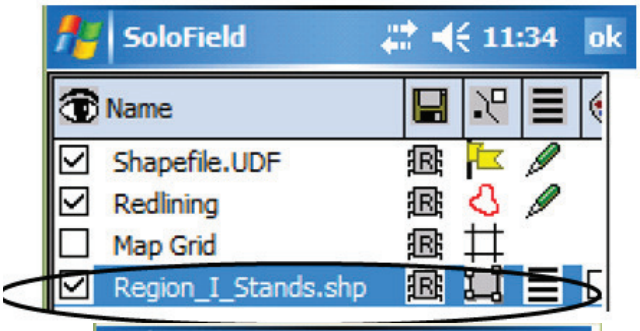
Loading the Shapefile Layer

Loading a shapefile layer in SoloForest is almost the exact same process as loading a photo or topo layer back in Section 6.7. This time you select Arc Shapefile as the File Type in the Map Layers Window.

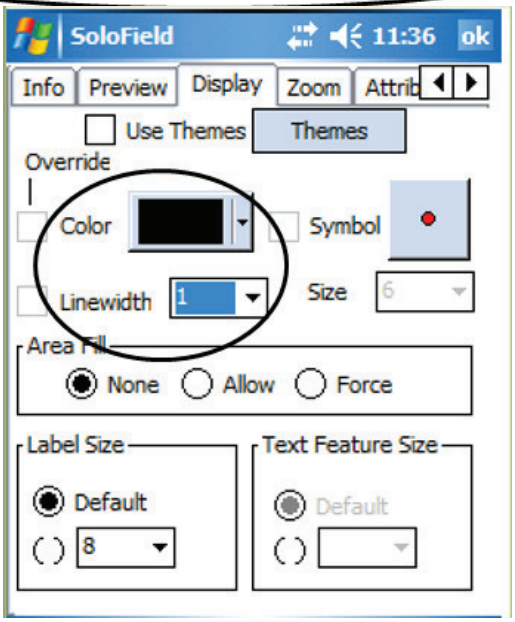
1. ***View menu > Map Layers > Add Layer button*** to get to this step



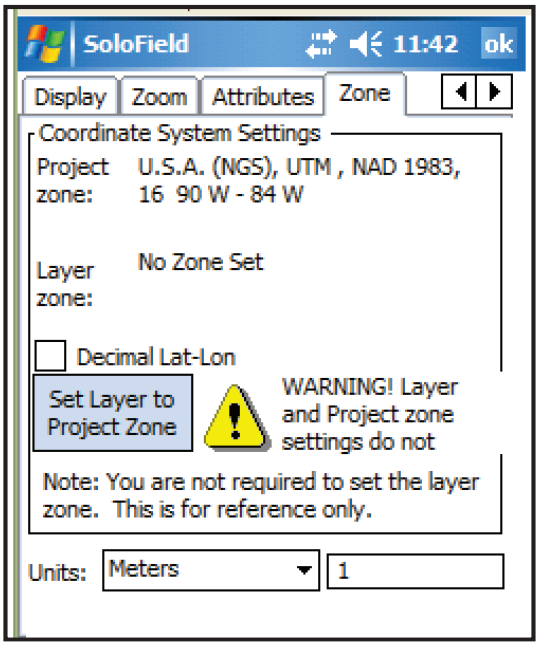
2. **Adjust Layer Properties** – Double tap on the shapefile layer in Map Layers screen to get to the layer properties where you can change the symbology and projection properties (among other things).



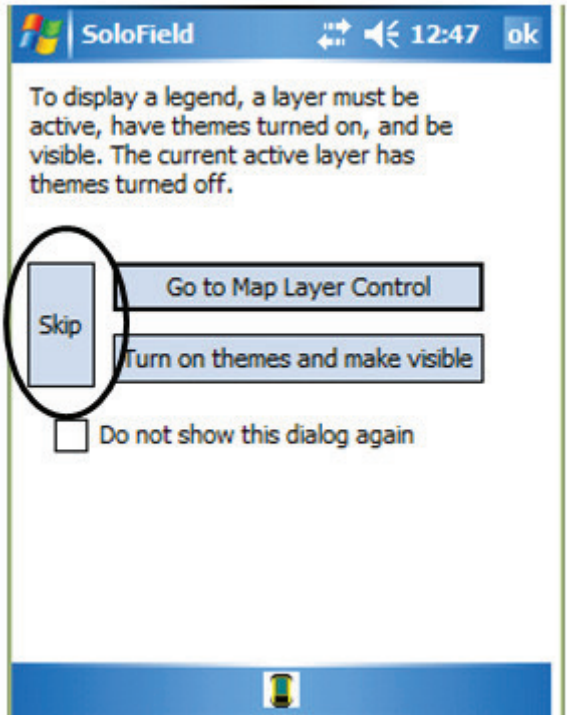
3. **Click the Display Tab** to change the color or line width of the layer.



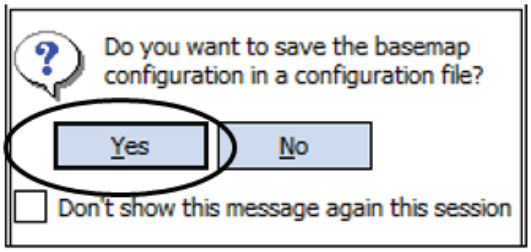
4. **Check the Projection Settings on the Zone tab.** Solo should read the projection information from the prj file if you included it when transferring your shapefiles to the handheld. If not, you can adjust any needed setting on the Zone tab. Yiour shapefile must either be projected in the same coordinate system as the project or in Lat Long WGS84. Verify the distance unints as well. ***Ok*** out when done.
5. **Ok/Exit out of the Map Layers Window.**



6. **Display a Legend Screen**. Usually you will click ***Skip*** here. The map screen is small enough and a legend will normally use up too much space.



7. **Save the Basemap to a Configuration File**. Click Yes and then Ok the File name for the Config file. Then you will be back to the main screen in Solo.

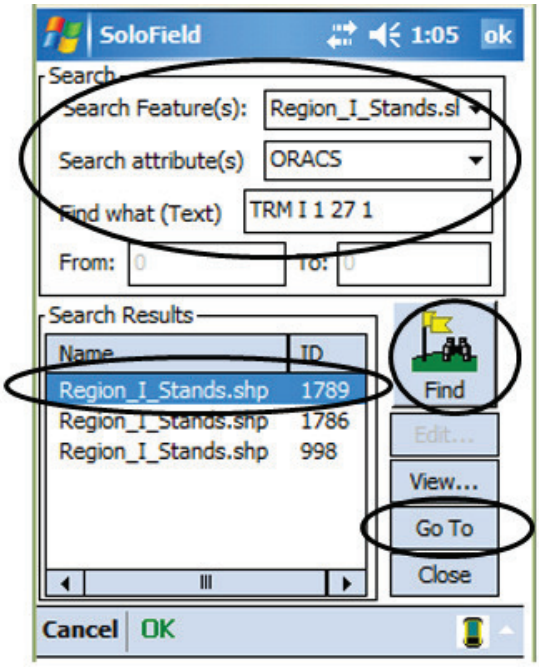


8. **Zoom to Everything to see the Shapefile.** If you are not in the same location as your shapefile, select Zoom to Everything and it will be displayed.

Searching for a Specific Stand using Find Feature function

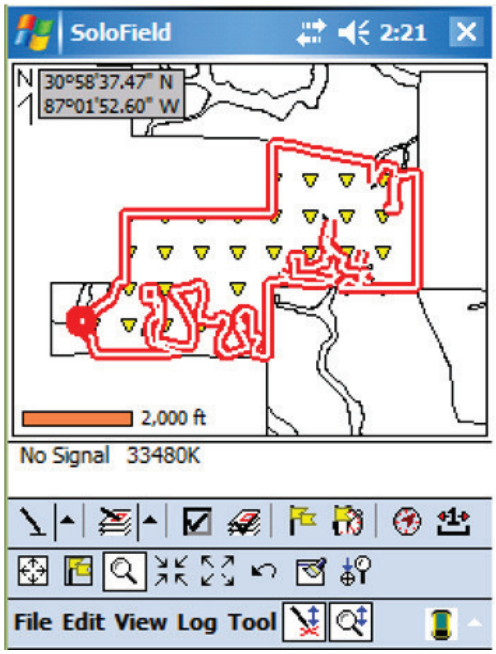
Many organizations have extensive GIS databases that are organized by Ownerships, Regions, Compartments, Tracts, Stands, etc. It is very easy to transfer a Stand level shapefile (with thousands of stands) to a handheld, load that shapefile, and search for a specific stand that you want to cruise. Here's how:

1. Select ***Edit > Find Feature***
2. **Select the shapefile in Search Feature**
3. **Select an Attribute** that has unique names for the stand you are searching for.



4. **Enter the exact stand name in Find What**
5. **Select Find** and then wait while the dbf part of the shapefile is queried.
6. **Tap on the correct stand** you want to go to from the search findings.
7. **Select Go To** and Solo will Zoom to the Stand

Creating a Cruise Grid on a Shapefile

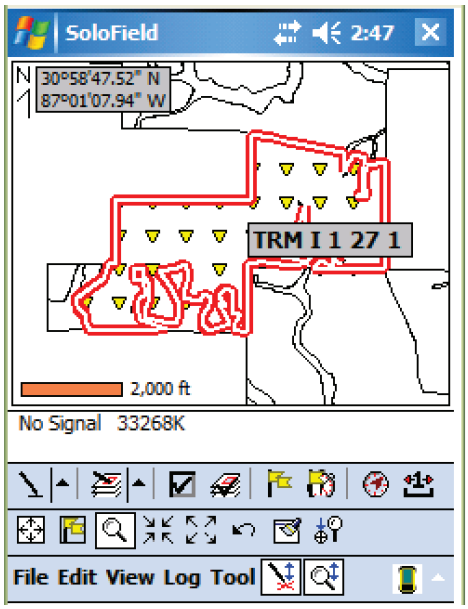


Once you have located the shapefile you want to cruise you can then create a cruise grid on it as follows:

1. Set Stylus to **Stylus Selects Basemap Feature.**
2. **Select the polygon.**
3. **Select the Generate Grid tool.**
4. Follow the same procedures form Section 6.10 for generating grids.

Note: If your have a multi-part shapefile where multiple polygons have the same attributes, Solo Forest will select and create grids across all polygons that are simultaneously selected. If you have single part shapefiles you could use the Freehand Redlining technique described later in this section to create a dummy Tract around multiple stands and then create a grid in the Tract.

Editing the Shapefile Attributes

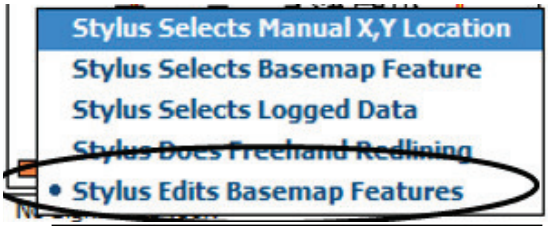


Once you have set your stylus and the Active Layer correctly, you can click anywhere on or in the shapefile and the value for the Attribute you selected should be displayed. If you click on that box, the other values for the other attributes of that shapefile will be displayed. You can then double click on those values and edit them if necessary.

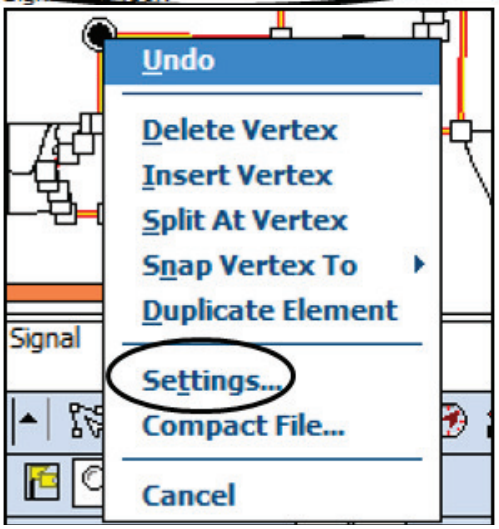
AREA_ID	1
OWNERSHIP	TRM
REGION	I
COMP	27
ORAC	TRM I 1 27
ORACS	TRM I 1 27 1
STAND_TYPE	Planted
SPECIES	LL
TYPE_SPECI	PLL
ACRES	280.423875
NOTES	
STAND	1
YEAR	2004

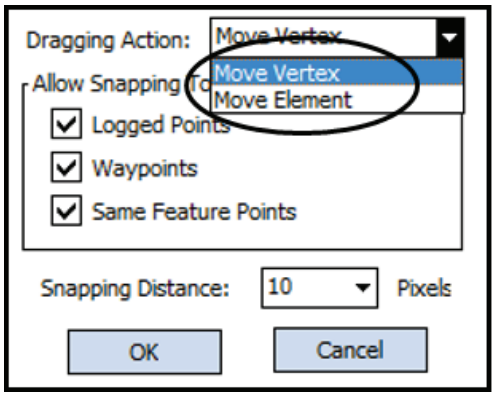
Editing the Shapefile Geometry

1. **Set your stylus to Stylus Edits Basemap Features.**
2. **Select the shapefile to edit.**
3. Double **click on a node (vertex).**



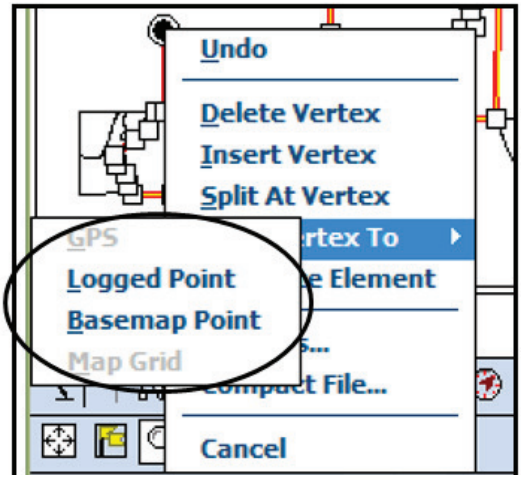
The following screen will appear. You can adjust the settings if you go to the Settings menu. You can choose whether you want to Move the entire shapefile or simply Move an individual vertices.





4. **Decide whether you want to Snap the shape or vertex to:**
   - GPS location,
   - A logged point
   - A basemap point
   - Point on a map grid

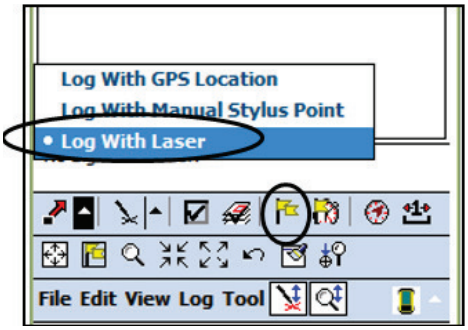
   Once this is set up, you can select the move the shape or vertices accordingly.

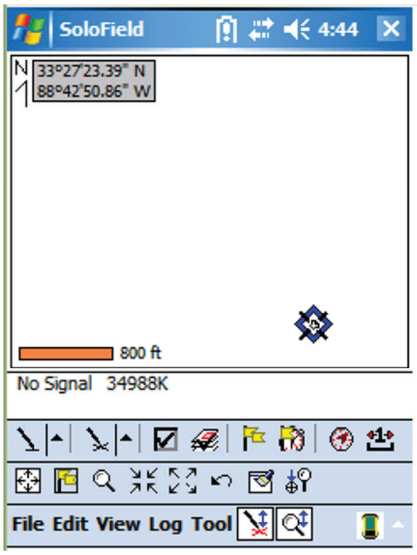


5.13 Log with Laser

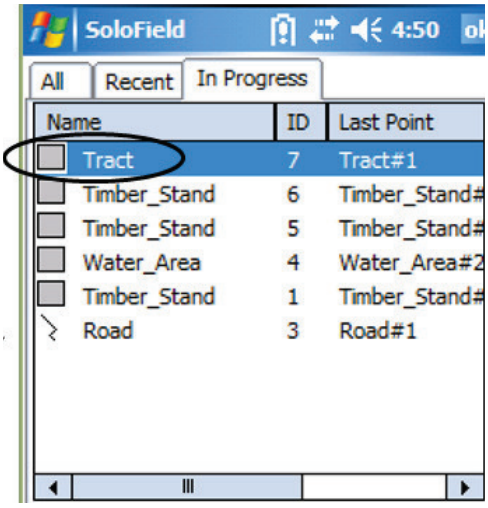
One tool in Solo Forest that is particularly useful is the ability to enter a property description and have it drawn on the screen for you. The best ways to do this is to use the Log with Laser function, but not really use a laser. In this example we will create a square 40 while standing at 1 corner.

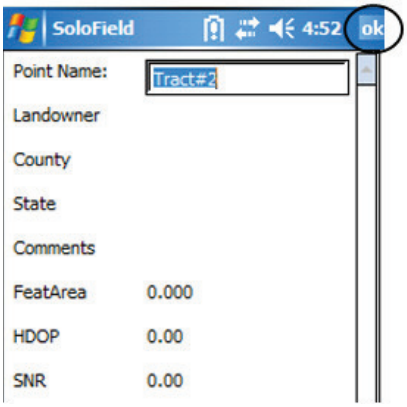
1. **Log a GPS Point at a known Corner**. Follow the directions for Logging a Static Point. Make the feature type be a Tract area.
2. **Change the Log with function to Log with Laser**.



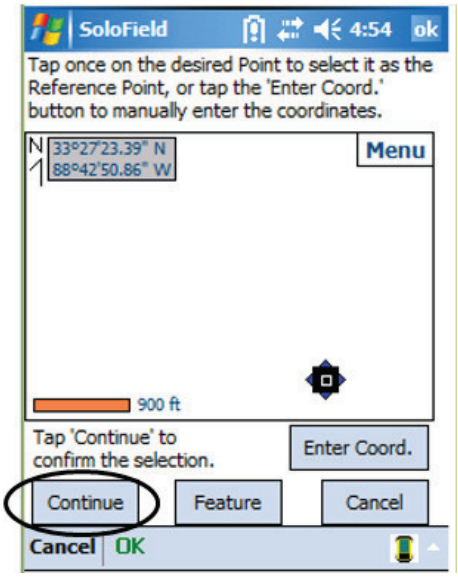


3. **Select Log Static (Single Flag)** to add the next corner.
4. **Add this position to the Tract Feature in the In Progress tab**.
5. Click ***OK*** on the Attributes Screen.

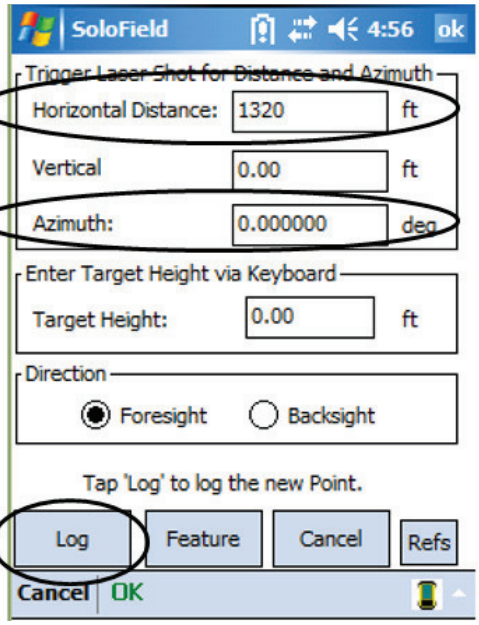


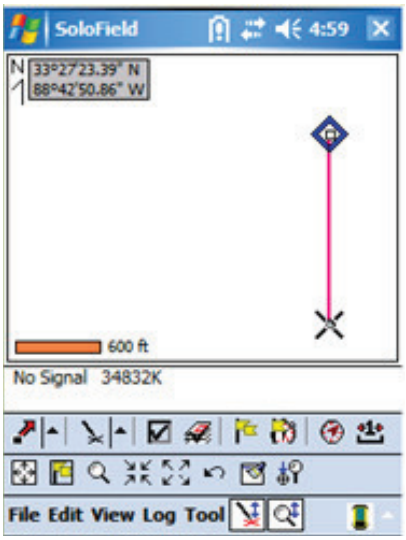


6. Select the GPS point that you just logged as your **Reference Point** and then press ***Continue***.

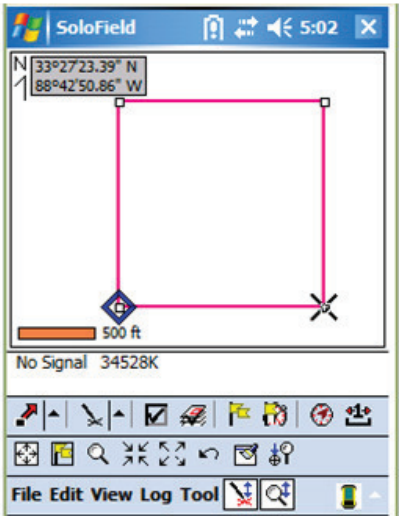


7. **Enter the Horizontal Distance and Azimuth to the next point**. In this case it is 1320 ft and 0 degrees (Due North). Then press ***Log***. The offset point will show up on the screen and will be connected to the first point.





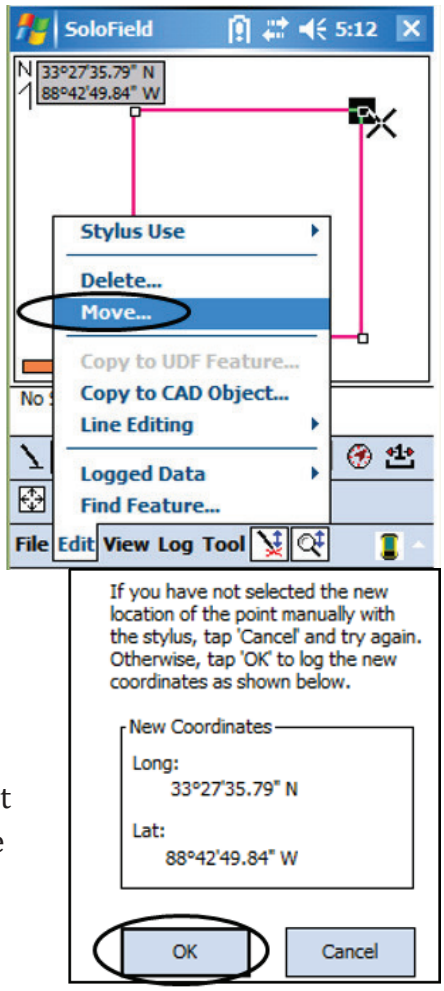
8. **Log another Static Position and follow Steps 3-7** to select the last logged point (blue diamond) as the Reference Point, input the correct Horizontal Distance and Azimuth to the next corner, and finally to Log that point.
9. Repeat Step #8 one more time and your square 40 should look like this.



5.14 Moving a Point

Since a square 40 is never square, you need to be able to move points from where you projected them with the Log by Laser technique to where they actually are. To do this:

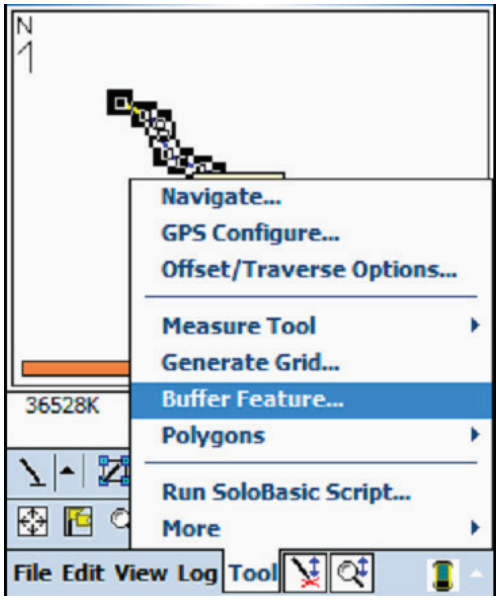
1. **Navigate to the projected corner and then find the actual corner**.
2. **Set your Stylus set to Select Logged Data.**
3. **Select the corner to move**.
4. Click ***Edit menu > Move***.



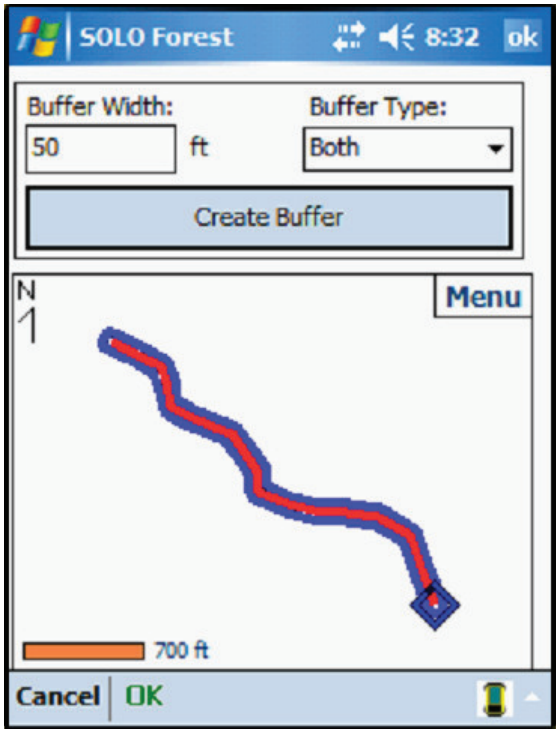
5. Click ***OK*** when Solo Forest identifies the point you selected, and then Click ***OK***, or Log, at the Relocate Point Screen when you are satisfied with the Deviation of that point.

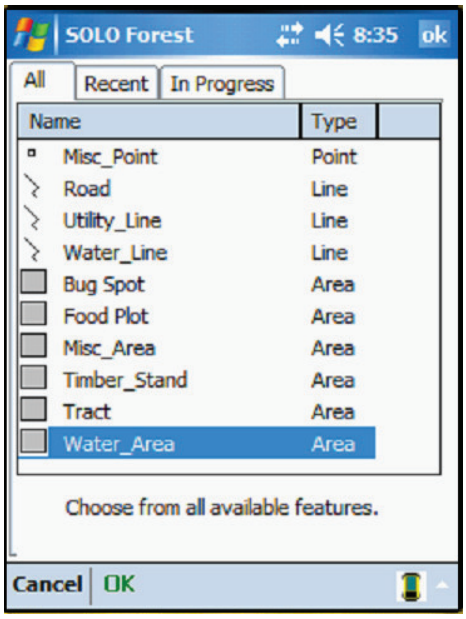
5.15 Creating Buffers

1. **Log a Point or Line Feature.**
2. **Select the feature to buffer.**
3. Select ***Tool menu > Buffer Feature***



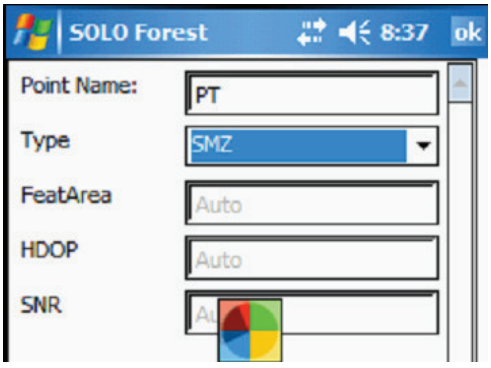
4. **Assign the Buffer Parameters** – set the correct Buffer Width and then choose if you want to buffer the left side, right side, or both sides for a line feature or inside, outside, or both for a polygon feature. NOTE: The buffer feature is always going to be a polygon feature.
5. Select ***Create Buffer*** and then ***OK***.



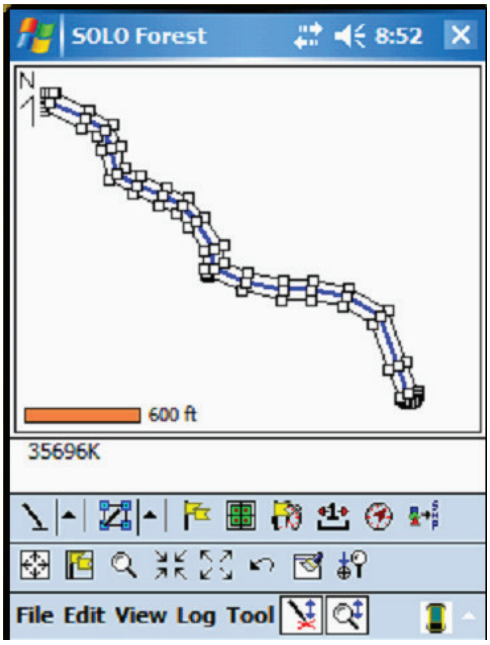


6. The Buffer area you just created will be called a Buffer feature, but you now need to select an existing area feature to **assign the buffer's attributes**.

7. **Assign the correct Attributes**.

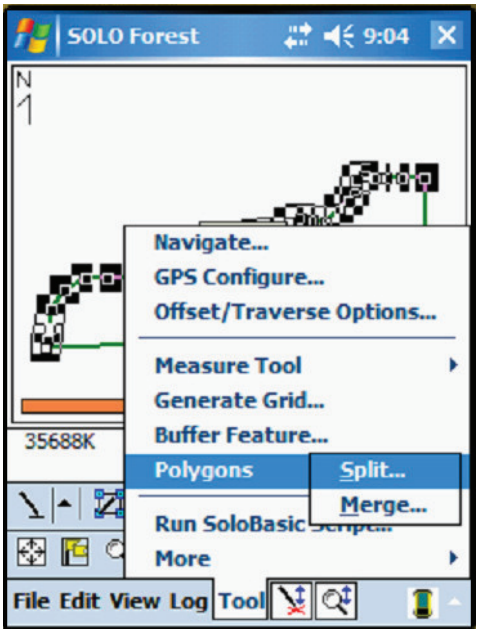


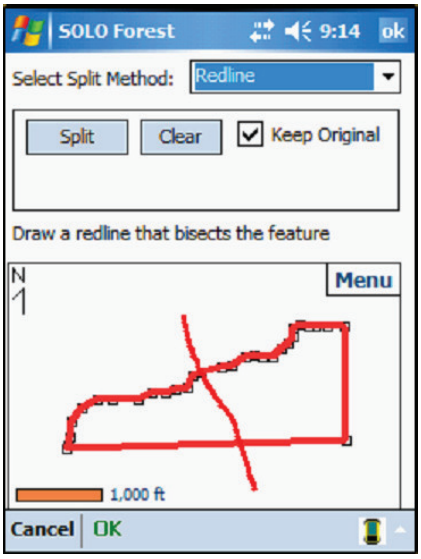
8. You now have a new feature called Buffer with an assigned set of attributes that is physically located around, attached to, inside, outside or both inside and outside your mapped line or area feature.



5.16 Split Polygons

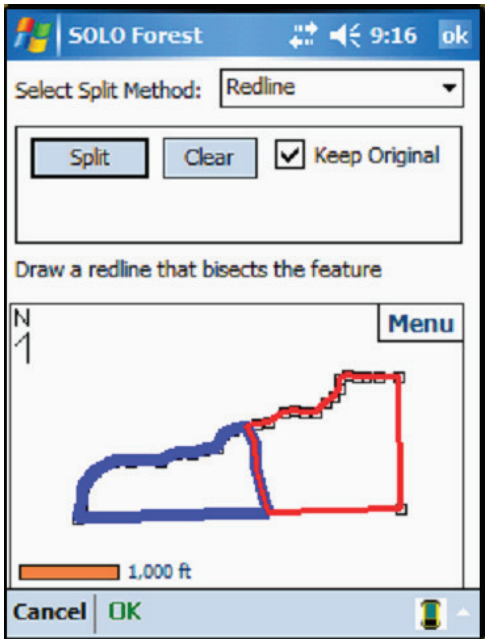
1. **Log a Point or Line Feature**.
2. **Select the feature.**
3. Select ***Tool menu > Polygons > Split***





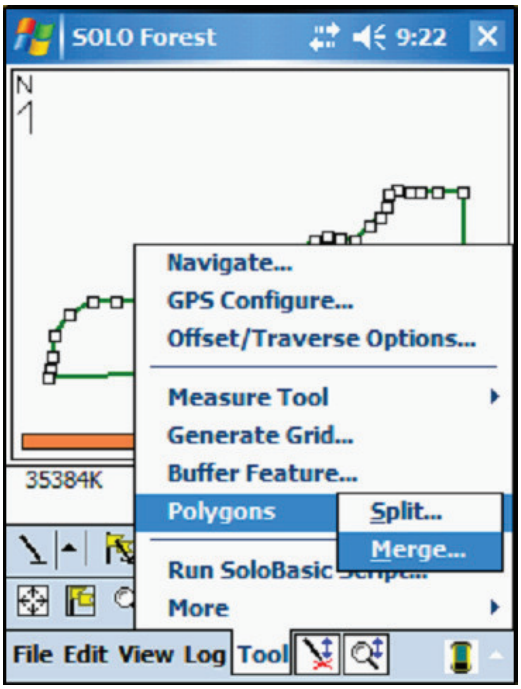
4. **Choose to split the polygon based on:**
   - an existing feature that bisects the selected feature,
   - a redline drawing
   - Selecting 2 vertices on the selected feature.

5. **Choose whether or not you want to keep the Original feature or delete it off**.
6. Select ***Split and OK***. You now have 2 new polygons in place of the original one.



5.17 Merge Polygons

1. Set stylus use for **Stylus selects Whole Feature** or **Logged Data.**
2. Select ***Tool menu > Polygons > Merge.***

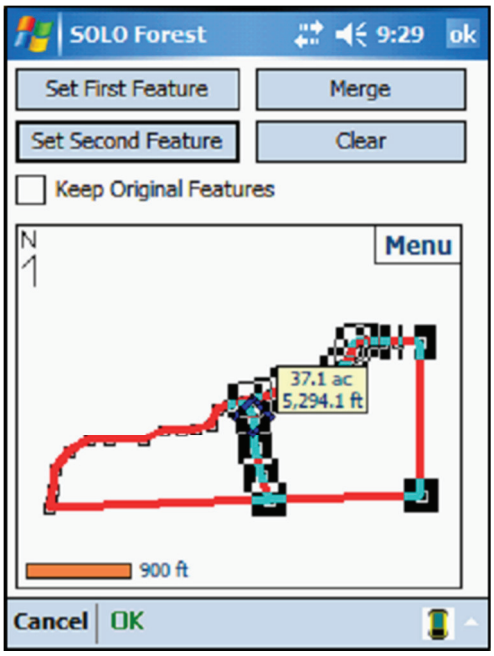


3. **Select the first polygon to merge and select Set First Feature**.

4. **Select the second polygon to merge and select Set Second Feature**.

5. **Decide if you want to keep the original polygons or delete them off**.

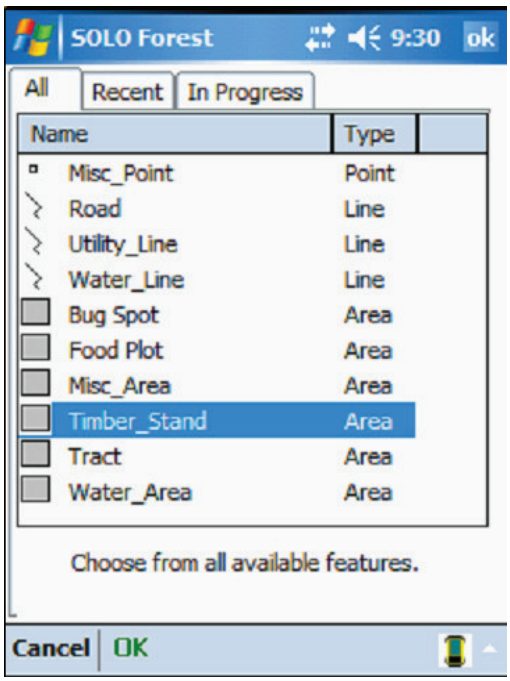
6. Select ***Merge and OK.***

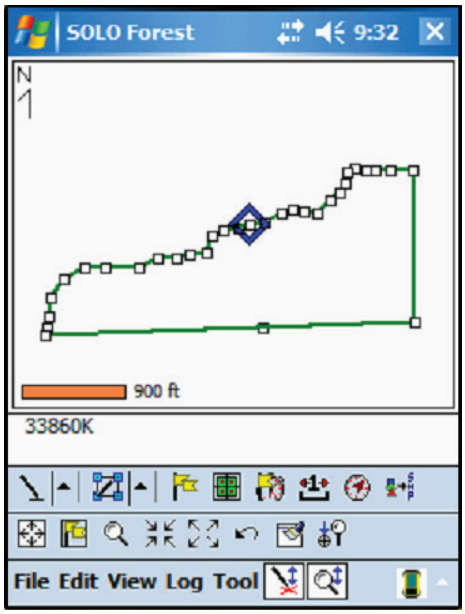


7. **Choose which kind of area feature the new Merged Polygon will be and select *OK*.**

8. **Assign the attributes** for the new feature and select ***OK***.

9. You now have a new feature that consists of the 2 merged polygons.

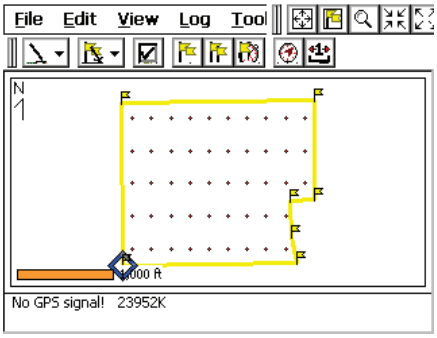




5.18 RealTime Inventory Overview

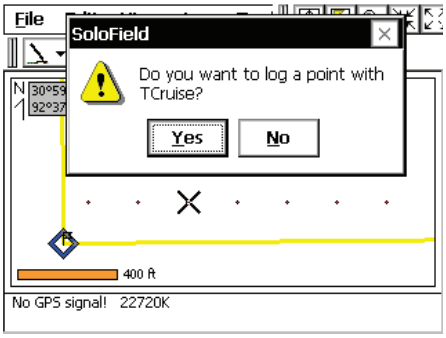
RealTime Inventory or (RTI) is the integration between a field inventory software, TCruise, and a GPS data collection/verification software, Solo Forest. It is the only forestry solution that allows you to do both GPS and inventory work on the same data collector and have the data from both programs linked to each other. It is a patented process developed by F4 Tech. Here's how it works.

1. **Create a Stand Boundary**—this can be done in the office or field by digitizing on a photo, or by mapping the stand with GPS in Solo.

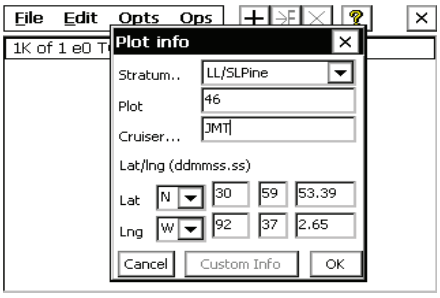


2. **Create a Cruise Grid**—in the office or field.

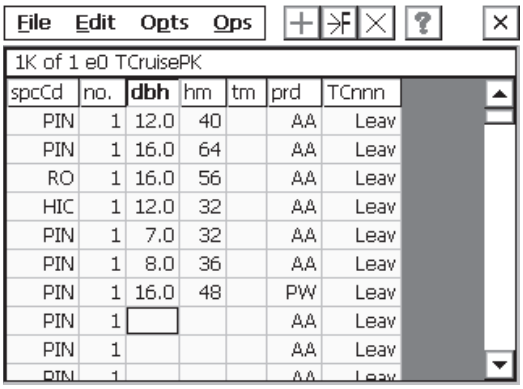
3. **Navigate to a Plot**—Select which plot you want to go to and use GPS to navigate there. When you get within a specified distance from plot center, Solo Forest will automatically alert you that you are near plot center and ask you if you want to collect data with TCruise.



4. **Enter Plot Data**—If you answer "YES", a link will be established between Solo Forest and TCruise. The PlotID and Lat./Long will be sent to TCruise, and you will be automatically "switched" to TCruise. You can then enter Plot Info and then go to the data entry screen.



5. **Enter Tree Data**—the last step is to tally the trees and save the plot in TCruise. You can enter trees in a tally card or spreadsheet format, both of which have your species, products, and merchandizing specs built in to them. Your products will be automatically assigned by dbh unless you override and assign them manually.



spcCd	no.	dbh	hm	tm	prd	TCnnn
PIN	1	12.0	40		AA	Leav
PIN	1	16.0	64		AA	Leav
RO	1	16.0	56		AA	Leav
HIC	1	12.0	32		AA	Leav
PIN	1	7.0	32		AA	Leav
PIN	1	8.0	36		AA	Leav
PIN	1	16.0	48		PW	Leav
PIN	1				AA	Leav
PIN	1				AA	Leav

6. **Do It Again**—when you finish the first plot, you simply go back to Solo Forest, select the next plot and keep going. All cruised plots are marked in Solo Forest as "Visited".