



12. Importing Field Data into a Desktop GIS

(last updated February 2006)

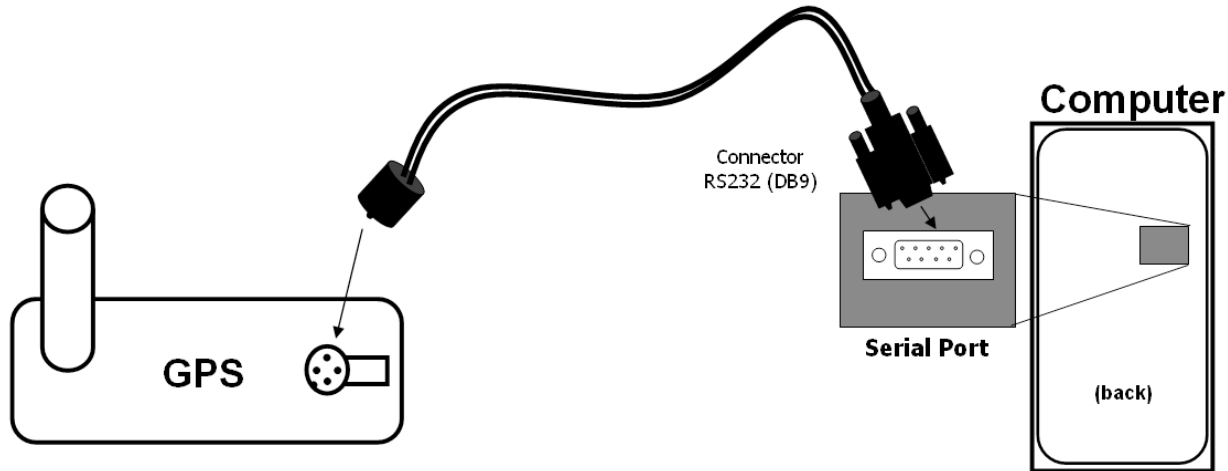
A. Bringing HGIS data from a handheld computer to a desktop GIS (e.g., ArcGIS, ArcView or desktop HGIS)

1. Relatively easy!
2. Save your files in the appropriate GIS format on the handheld computer.
 - a. Most often this will be ESRI “shape file” format
 - b. A “shape” file has 3 (or more) related files:
.shp, .dbx, .shx
3. Transfer the data
 - a. Direct link between the handheld and the desktop computer
 - i. ActiveSynch
(very similar to Palm’s “HotSynch” – but is used for Windows CE)
 - b. Copy the data to a memory card and transfer this (through a reader that usually connects by a USB port, or in more recently made computers, an internal port)
 - i. Flash Memory Card (SD)
 - ii. Other memory cards may also work, depending on the handheld computer, such as Compact Flash (CF)

B. Downloading data from a Garmin GPS receiver into ArcView (version 3.x)

1. A bit more complicated. Note: these instructions will vary depending on the type of Garmin receiver.
2. First, you must **connect the Garmin GPS to the Computer**
 - a. Plug the round GPS connector end into the back of the GPS unit.
 - b. Plug and screw in the serial port connector into a serial port in the back of the computer.





3. Turn the Garmin GPS on. Press the Menu button twice. Select Setup. Scroll over to Interface and change the format to GARMIN.
4. Now you are ready to download – and you have several options explained below.

Options for Downloading from Garmin

1. Downloading with Garmin MapSource software (<http://www.garmin.com/cartography/>) or (<http://www.garmin.com/cartography/mapSource/topo.jsp>)
 - a. Advantages: easy to install; good for visualizing data; many products tailored to specific uses on the GPS receiver
 - b. Disadvantages: proprietary format so you cannot convert to other formats like ESRI shapefiles (that ArcView uses)
2. Downloading with a freeware software such as Waypoint+ (<http://www.tapr.org/~kh2z/Waypoint/>)
 - a. Advantages: Can to convert coordinates to Excel and/or ArcView shapefile formats
 - b. Can upload and download data directly from a Garmin GPS.
 - c. Exports waypoint, route and track data into text format.
 - d. Disadvantages: Does not import *directly* to ArcView
3. Downloading with an ArcView extension (called DNR Garmin (<http://www.dnr.state.mn.us/mis/gis/tools/arcview/extensions/DNRGarmin/DNRGarmin.html>)

Advantages: ability to directly transfer data between ArcView 3.x GIS and Garmin GPS handheld receivers

 - a. Use point features (graphics or shapefile) and upload them to the GPS as WayPoints
 - b. WayPoints, Tracklogs, and Routes collected using the GPS can be transferred directly to ArcView and saved as Graphics or Shapefiles

Steps When Using DNR Garmin Extension for ArcView

This extension was built by staff at the Minnesota Department of Natural Resources (DNR). They have created a good website to get the latest information and version of this extension to provide users the ability to directly transfer data between Garmin GPS handheld receivers and various GIS software packages.

The instructions to install and use this extension are provided online at:

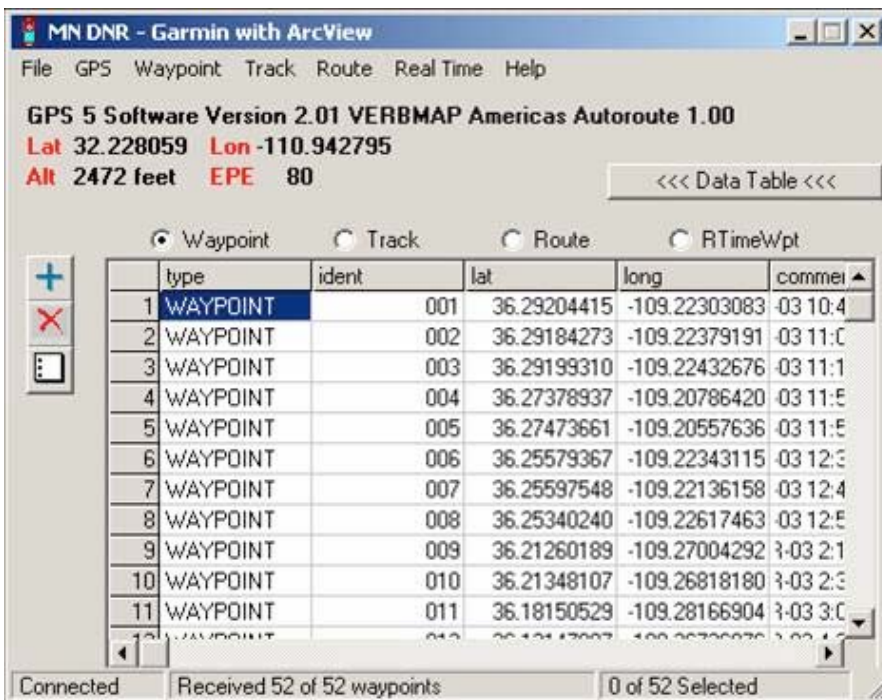
<http://thoreau.dnr.state.mn.us/mis/gis/tools/arcview/Training/WebHelp/Training.htm#DNRExt/dnrgarmin43/GPIntro.htm>

Setting up the DNR Garmin extension software:

1. Go to Start Menu > Programs > ESRI > ArcView GIS 3.2 > ArcView GIS 3.2.
2. In the 'Welcome' dialog box, select "Create a New Project with a New View" and press OK.
3. If a dialog appears asking if you want to add data now, press "No".
4. From the File menu, select "Extensions..."
5. Scroll down the list and select "DNR Garmin – Arc View."
6. The 'DNR Garmin' menu will appear. From this menu, select "Open Garmin GPS."
7. A new window will appear asking you if you would like to project the data with the current projection. If this window does not appear, go to DNR Garmin > Set Projection.
8. If the 'Use Default Projection' window does not list WGS – 1984 as the projection, press No .
9. In the new window, change the Category to WGS - 1984, then Type to Zone 12 for Arizona or Zone 13 for eastern AZ or Zone 11 for western AZ. Press OK. (Note: if you are not in Arizona, you will need to input your respective UTM Zone.)

Importing waypoints into ArcView:

10. A window called 'MN DNR – Garmin With ArcView' should have appeared when you selected DNR Garmin > Open Garmin GPS.



11. If the Garmin is connected correctly, the Lat, Lon, Alt, and EPE fields should be filled in.
12. Select Waypoint > Download. The points will enter into a table at the bottom of the window.
13. Select File > Save to > ArcView > Shapefile...
14. Save the file in your directory.
15. Close the 'MN DNR – Garmin with ArcView' window.

