

Southeast Coast Network

National Park Service
Inventory & Monitoring Program



Standard Operating Procedure (SOP) #1.1.2

Uploading Points to GPS Units

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Summary

This Standard Operating Procedure explains the procedures for uploading sampling points to Garmin Rino 530HCx GPS units using ArcGIS and the software package “Minnesota Department of Natural Resources (DNR) Garmin,” available from <http://www.dnr.state.mn.us/mis/gis/tools/arcview/extensions/DNRGarmin/DNRGarmin.html>.

Revision Log

Previous Version #	Revision Date	Author	Changes Made	Reason for Change	New Version #
1		Byrne, Smrekar	Minor edits	Publication of amphibian protocol	1.1

Equipment

- Garmin GPS unit
- Computer with ArcGIS and MN-DNR Garmin installed
- GPS-to-computer cable

Procedure

- Ensure MN-DNR Garmin is installed on your system and active in ArcGIS.
- Connect the Garmin to the computer and turn on the GPS.
- Access the units for the Garmin (Main Menu > Setup > Units). Position Format: hdd⁰ mm'ss.s", Map Datum: NAD83.
- Launch ArcGIS. Open a New Empty Map Document.
- Launch MN-DNR Garmin.
- Dock the MN-DNR Garmin Toolbar in the ArcGIS window.
- In the menu bar of MN-DNR Garmin, Select GPS > Set Port > Choose the appropriate port (likely USB) (Figure 1).

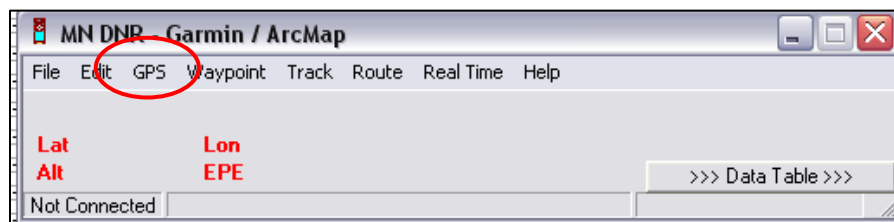


Figure 1. Minnesota Department of Natural Resources Garmin Application window. Red oval indicates GPS options.

- From the Waypoints menu (Figure 2), select “Waypoint Properties” (Figure 3).

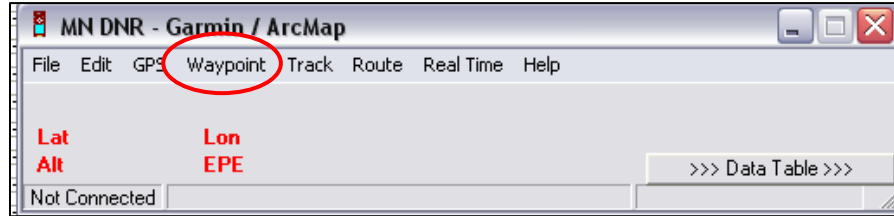


Figure 2. Minnesota Department of Natural Resources Garmin Application window. Red oval indicates waypoint settings.

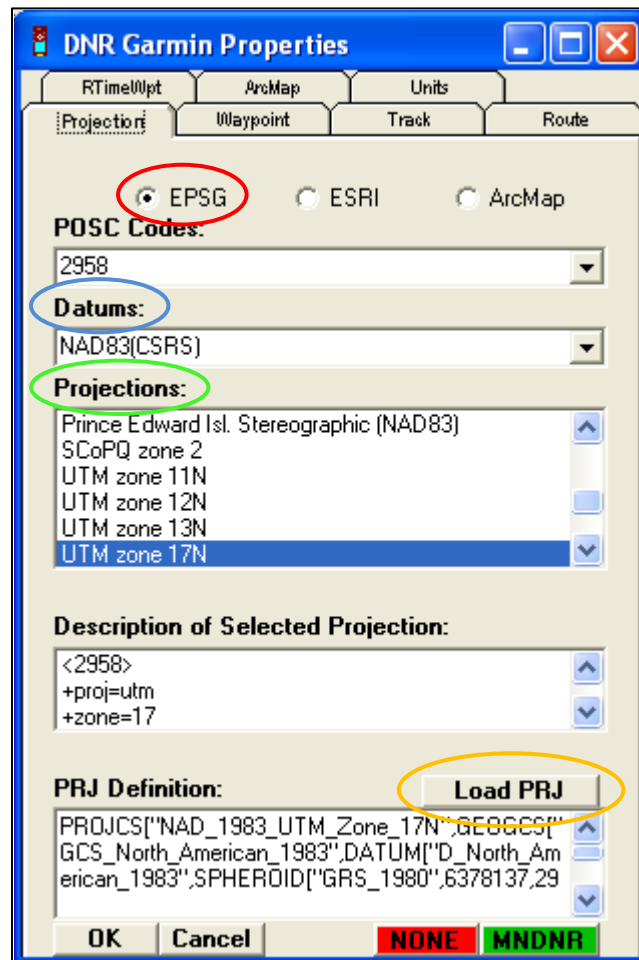


Figure 3. Minnesota Department of Natural Resources Garmin Application window. Red oval indicates EPSG radio button, blue oval indicates Datums, green oval indicates Projections, orange oval indicates Load PRJ.

- From the Projections Tab, select the EPSG radio button (Figure 3; red oval).
- For Datum, select NAD83 or NAD83 (CSRS) (Figure 3; blue oval). Ensure the Datum selected here is the same Datum used in the handheld GPS unit.
- For Projections (Figure 3; green oval), choose the appropriate UTM zone (Figure 4) for each park. SECN parks occur in 3 UTM zone, 16, 17, and 18.
- For PRJ Definitions, click “Load PRJ” (Figure 3; orange oval).
- Navigate to the correct projection: Projected Coordinate Systems > UTM > NAD 1983 > appropriate UTM Zone for relevant SECN park (Figure 4, Table 1).

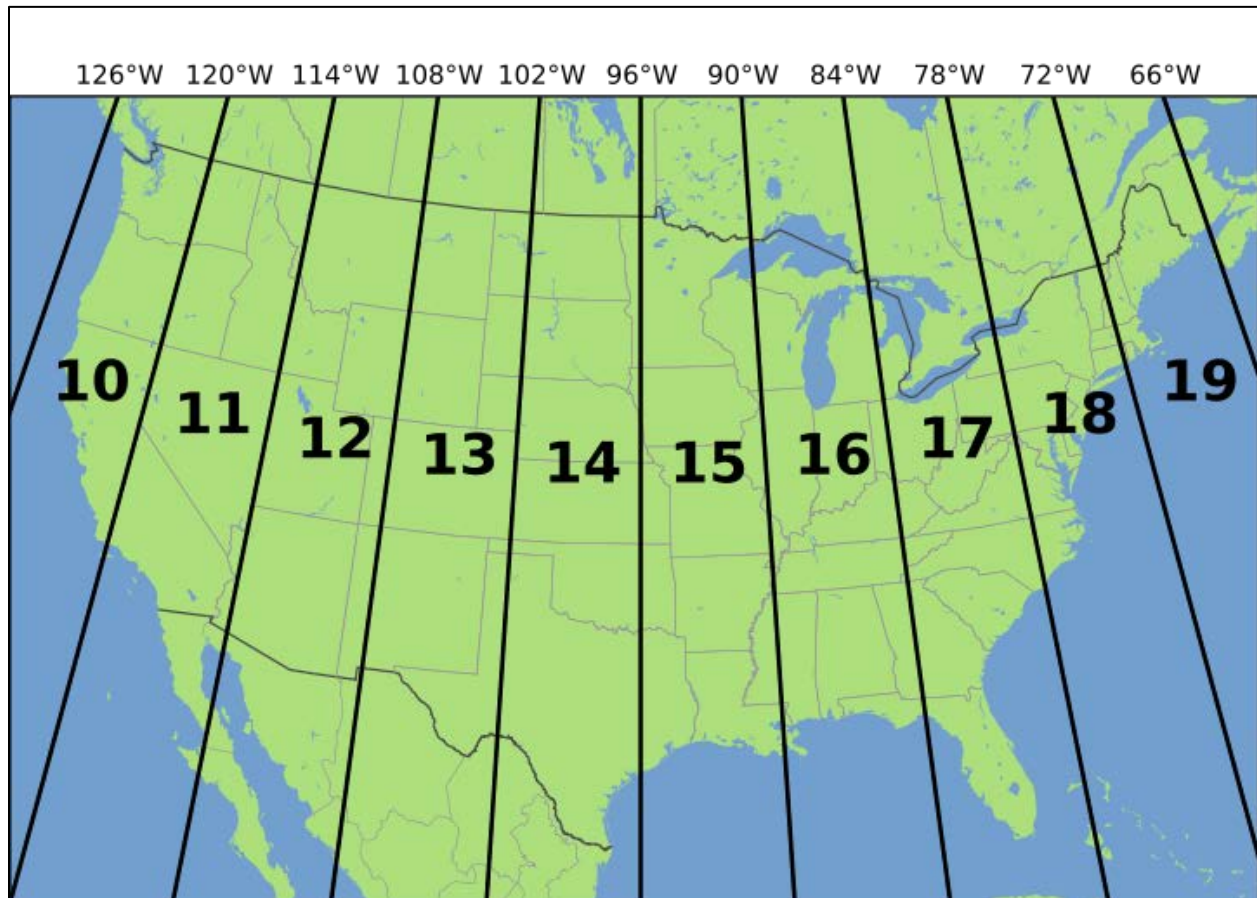


Figure 4. Universal Transverse Mercator (UTM) coordinate system zones for North America. From <http://en.wikipedia.org/wiki/File:Utm-zones.svg>

Table 1. Universal Transverse Mercator (UTM) coordinate system zones for Southeast Coast Network (SECN) Parks.

UTM Zone		
16N	17N	18N
CHAT	CANA	CAHA
HOBE	CONG	CALO
KEMO	CUIS	MOCR
	FOFR	
	FOMA	
	FOPU	
	FOSU	
	OCMU	
	TIMU/FOCA	

- After all properties are set, click OK on the bottom-left of the DNR Garmin Properties window.
- In ArcMap, add the park sampling-locations file to the map. The file is named “PARK_YEAR_samplocs_untruthed.shp.” This shapefile consists of candidate sampling locations that have had GIS selection criteria applied to them but have not been ground truthed. Open and review the attributes table to ensure a unique identifier exists for each sampling location and no spaces occur in the labels.
- From the DNR Garmin menu, Select File > Load From > Arc Map > Layer (Figure 5; red oval).

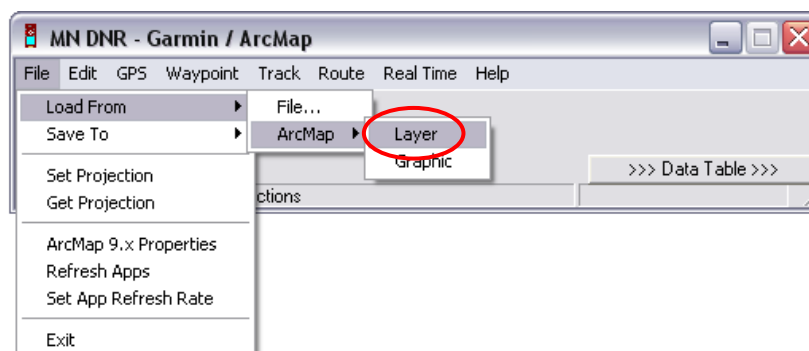


Figure 5. Minnesota Department of Natural Resources Garmin Application window. Red oval indicates menu path to add point shapefile.

- In the Identify Fields window, for ident select “db_sitenum,” for comment select “Today’s Date.” click OK (Figure 6).

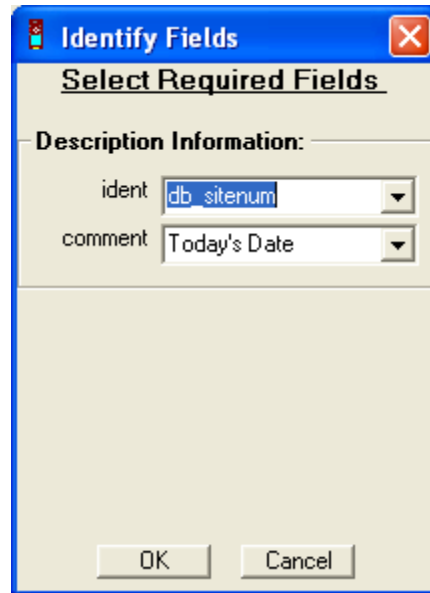


Figure 6. Minnesota Department of Natural Resources Garmin Application, Identify Fields window.

- All sampling location / points will be loaded into the onscreen table (Figure 7)

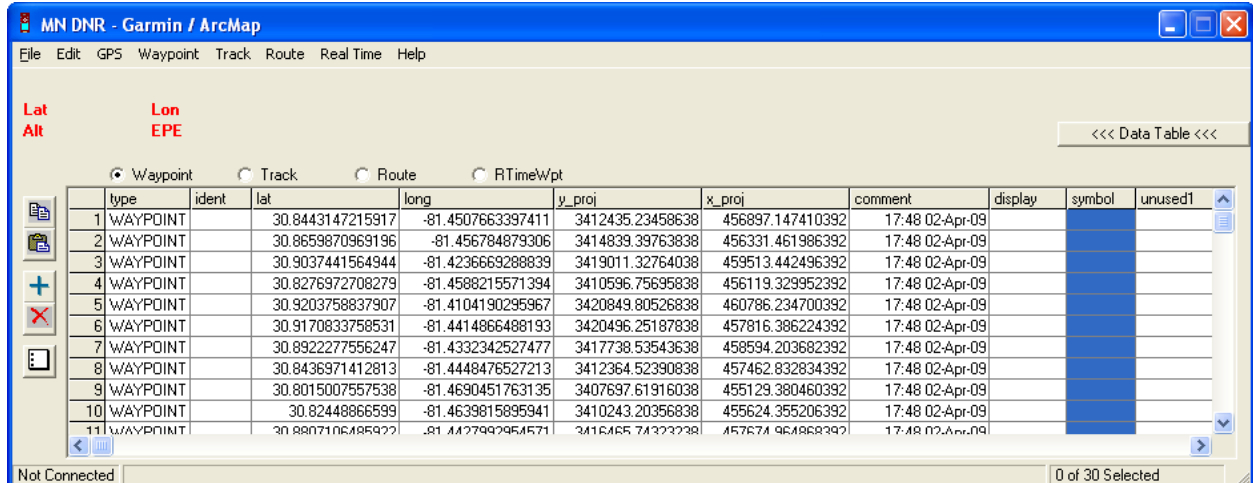


Figure 7. Minnesota Department of Natural Resources Garmin Application window. Sampling-location review window.

- Double click on the symbol column (Figure 7). You may need to expand the window to view all columns. Choose an appropriate symbol for the points. The symbol for Large City, 8200, is the preferred choice because it produces easily identifiable sampling locations / points in the GPS.
- Select the Waypoints and upload to the GPS unit.

- Ensure the points are in the GPS units before disconnecting. To check for successful upload of sampling location / point, on the GPS unit navigate to Main Menu > > Find > Waypoints > PARK001, etc., where “PARK” is a specific park’s acronym. The first location / point name may have to be typed in manually if the GPS does not have good satellite reception / coverage at your computer desk.