

# Cumberland Piedmont Network

National Park Service  
Inventory and Monitoring Division

---



## Standard Operating Procedure 2

### *Using GPS (Based on use of the GPSMAP 64)—Version 1.26*

Please cite this as:

Cumberland Piedmont Network. 2023. Using GPS (based on use of GPSMAP 64)—Version 1.26. Cumberland Piedmont Network Standard Operating Procedure NPS/CUPN/SOP—2. Cumberland Piedmont Network, Mammoth Cave, Kentucky.

## Overview

This standard operating procedure (SOP) describes the proper use of the Garmin GPS units. This methodology will continue to evolve as new GPS units are introduced for use by NPS personnel. Note: This SOP is meant as a tutorial for using whatever GPS unit is used by the teams in that field season. Specific GPS unit tasks are also outlined in SOP 3 *Site Selection and Plot Establishment—Version 1.48* (CUPN 2023). The main functions of the GPS receiver are to provide a navigation tool whereby predetermined sample points can be uploaded, then used to navigate to the selected plot locations and finally collect field waypoints to document the actual point where the plot was established. In some cases, a GPS unit will also be used to save locations to aid in the return trip to the vehicle or boat, by marking the starting point or specific locations along the way (such as point leaving a trail, or access point along cliffs).

# Contents

|                                               | Page |
|-----------------------------------------------|------|
| Step by Step Instructions .....               | 3    |
| Uploading Plot Locations .....                | 3    |
| Delete a Nearby Waypoint .....                | 3    |
| Delete all Waypoints .....                    | 4    |
| Downloading Recorded Location to ArcGIS ..... | 4    |
| Suggested Reading .....                       | 4    |
| Equipment List .....                          | 4    |
| Literature Cited .....                        | 4    |
| Revision Log.....                             | 5    |

## Step by Step Instructions

Install two fully charged AA batteries in the back of the unit. Always carry two additional fully-charged batteries as backup. Turn on the GPS by depressing the power button. Check SETUP options by pressing the menu button twice, then scroll down to the SETUP selection and press ENTER. Scroll through the sub-menus (using the Rocker keypad) to following menus and ensure that the following settings are in place:

System:

- Satellite System = GPS
- WAAS / EGNOS = On
- AA Battery Type = Type of Battery you are using (e.g., Alkaline, Lithium)

Position Format:

- Position Format = UTM UPS
- Map Datum = GCS North American 1983 (or NAD83)

Units:

- Distance and Speed = Metric
- Elevation (Vertical Speed) = Meters (m/min)

Heading:

- Display = Numeric Degrees
- North Reference = True

Set other settings as desired by user. These settings will be saved on the GPS unit. It should not be necessary to re-enter them each time the unit is turned on.

To turn off the Garmin GPS unit, press and hold the small power button near the antenna for two seconds.

### Uploading Plot Locations

The GPS coordinates for pre-selected plot centers are loaded into the unit before field sampling. A WAAS-enabled GPS will greatly improve accuracy. Traditional GPS is accurate to 15 meters (49.2 feet [ft]). The WAAS-enabled GPS is accurate to less than 3 meters (9.8 ft) 95% of the time.

### Delete a Nearby Waypoint

With the unit on, depress the “Find” button, then select “Waypoints,” scroll to desired waypoint, highlight it, and hit “Enter/Menu/Delete.”

### **Delete all Waypoints**

Only do this if all the new Waypoints have been downloaded and saved, and you need to upload new data. Preferably this task will be performed by the data manager or GIS Specialist.

With receiver on depress “Find,” then select “Waypoints,” then press “Enter.” Toggle down to “Done” hit “Enter.” The full list of points will show up. Then click “Menu,” select “Delete All” then click “Enter.” It will ask “Do you really want to delete all the waypoints?” Select “Yes” and press “Enter.” Then all the waypoints from the unit will be deleted.

### **Downloading Recorded Location to ArcGIS**

After each field week, use the Minnesota DNR GPS application to download the recorded field plot locations from the GPS unit to a shapefile. Save this shapefile using the following nomenclature: <four letter park code>+<plots>+<-YYYY-MM-DD>.shp. One example would be “CUGAplots-2011-06-11.shp”)

### **Suggested Reading**

- Garmin GPSMAP 64 Owner’s Manual. GUID-DCC27A96-DAFF-41CD-A556-B2F7DBF296A4 v9. <https://www8.garmin.com/manuals/webhelp/gpsmap64/EN-US>
- Garmin GPSMAP 64 Quick Start Manual. February 2014. 190-01702-01\_0B. <https://www.manualslib.com/manual/713142/Garmin-Gpsmap-64.html>

### **Equipment List**

- GPSMAP 64 (two units per field crew)

### **Literature Cited**

Cumberland Piedmont Network (CUPN). 2023. Site selection and plot establishment—Version 1.48. Cumberland Piedmont Network Standard Operating Procedure NPS/CUPN/SOP—3. Cumberland Piedmont Network, Mammoth Cave, Kentucky. Available at: <https://irma.nps.gov/DataStore/Reference/Profile/2299604> (last accessed November 2023).

# Revision Log

Revision History.

| Version # | Date      | Revised by                   | Changes                                                                                                                                                                                                                                                                                                                                                                         |
|-----------|-----------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.1       | 01/15/12  | B. Moore and R. White        | Changed GPS unit from Garmin Map 76 to include Garmin Map 78<br>Removed Juno Trimble from equipment list                                                                                                                                                                                                                                                                        |
| 1.2       | 09/26/12  | B. Moore and R. White        | Minor editorial changes made to navigation directions                                                                                                                                                                                                                                                                                                                           |
| 1.23      | 3/26/2020 | L. Scoggins and T. Leibfreid | Changed GPS unit from Garmin 76/78 to GPSMAP 64 and updated unit menu options as appropriate<br>Added links for MN DNR instructions and GPSMAP 64 manual/quick start guide.<br>Added wording on significance of satellite settings<br>Added info on pre-loaded base layer<br>Moved Revision History to end of SOP and added more detailed list of changes made to date (bmoore) |
| 1.24      | 8/9/2020  | B. Moore                     | Address grammatical changes and clarifying comments made by IMD regional program manager                                                                                                                                                                                                                                                                                        |
| 1.26      | 7/17/2023 | —                            | Formatted by editor to regional I&M publication standards                                                                                                                                                                                                                                                                                                                       |