

Working with GPS locations in Google Maps

Understanding coordinates and how to work with them in Google Maps can be very useful.

This factsheet complements the previous one about collecting accurate GPS locations in the field.

In this sheet, we cover:

- The format of coordinates
- How to pinpoint the location of coordinates provided
- How to identify accuracy relative to the Track using the Google Streetview function
- How to find out the approximate GPS coordinates of a selected location

The format of coordinates

This is useful background information.

A pair of coordinates locate a point on the surface of the earth, referenced to two axes as if the surface of the earth was a flat 2D plane. The first coordinate references the North-South position (latitude) within a 90° arc between the equator (0°) and the pole (90°). The second coordinate references the East-West position (longitude) within a 180° arc between the Greenwich (Prime) meridian (0°) and the meridian which passes down the middle of the Pacific Ocean (180°).

The actual length on the ground of each unit of latitude is constant.

The actual length on the ground of each unit of longitude is longest at the equator and shortest at the pole.

In WA, we are south of the equator, and in the hemisphere east of the Prime meridian. Latitude is annotated as a negative number (or degrees South). Longitude is annotated as a positive number (or degrees East). Failure to include the negative for latitude will probably put you in northern China!

Coordinates were originally developed in degrees ($^\circ$), minutes ($'$), seconds ($''$) (or DMS). Each degree was subdivided into 60 'minutes'; each minute subdivided into 60 'seconds' (in this context these are units of distance).

Coordinates can also be expressed in the decimal format (or DD, Decimal Degrees). The degree part is the same as the DMS format. However, the minutes and seconds are converted to a fraction of a degree (with the denominator of the fraction being 60). You might also occasionally see degrees and decimal minutes (where the minutes are still in DMS format, and only the seconds have been converted to a fraction of a minute).

Coordinates in decimal degrees are the easiest to work with in Google Maps. You can convert from DMS to DD using an online converter such as www.pgc.umn.edu/apps/convert/.

Here are two familiar examples:

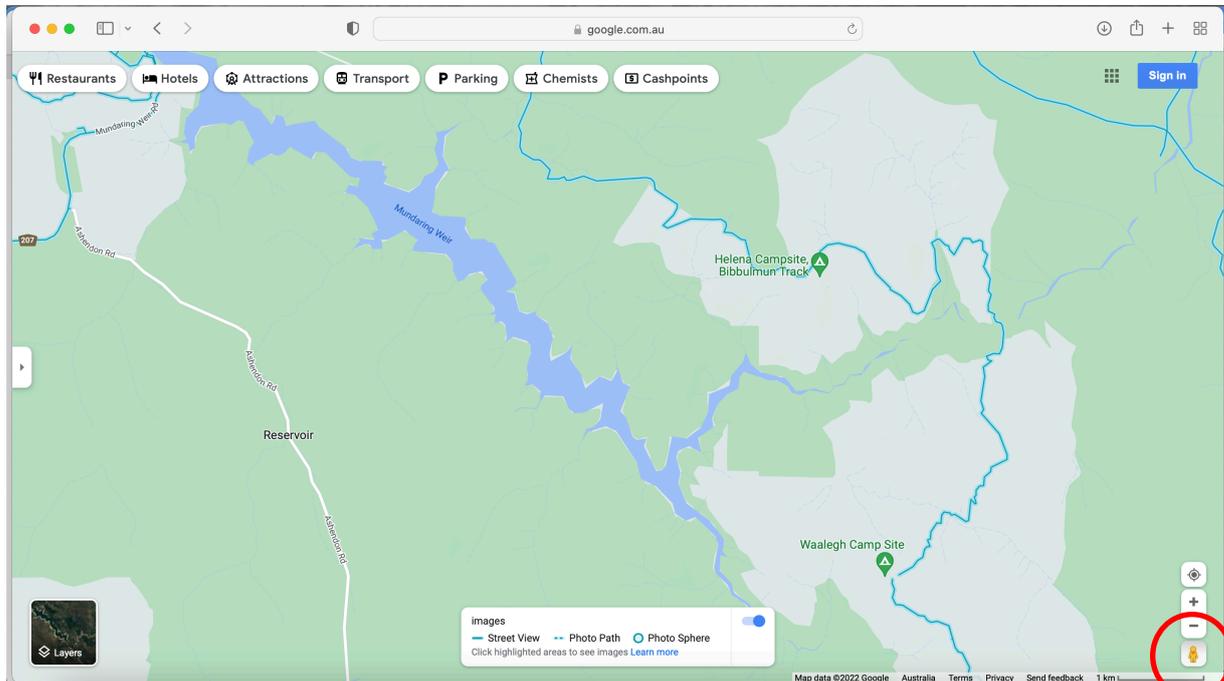
| | DMS | | DD | |
|-------------------|-----------------|------------------|-----------|-----------|
| | Latitude | Longitude | Latitude | Longitude |
| Northern Terminus | -31° 58' 22.44" | 116° 3' 38.304" | -31.97290 | 116.06064 |
| Southern Terminus | -35° 1' 22.404" | 117° 52' 59.592" | -35.02289 | 117.88322 |

There is another georeferencing format – Eastings and Northings – which is indicated on the Bibbulmun Track maps. We'll discuss that another time.

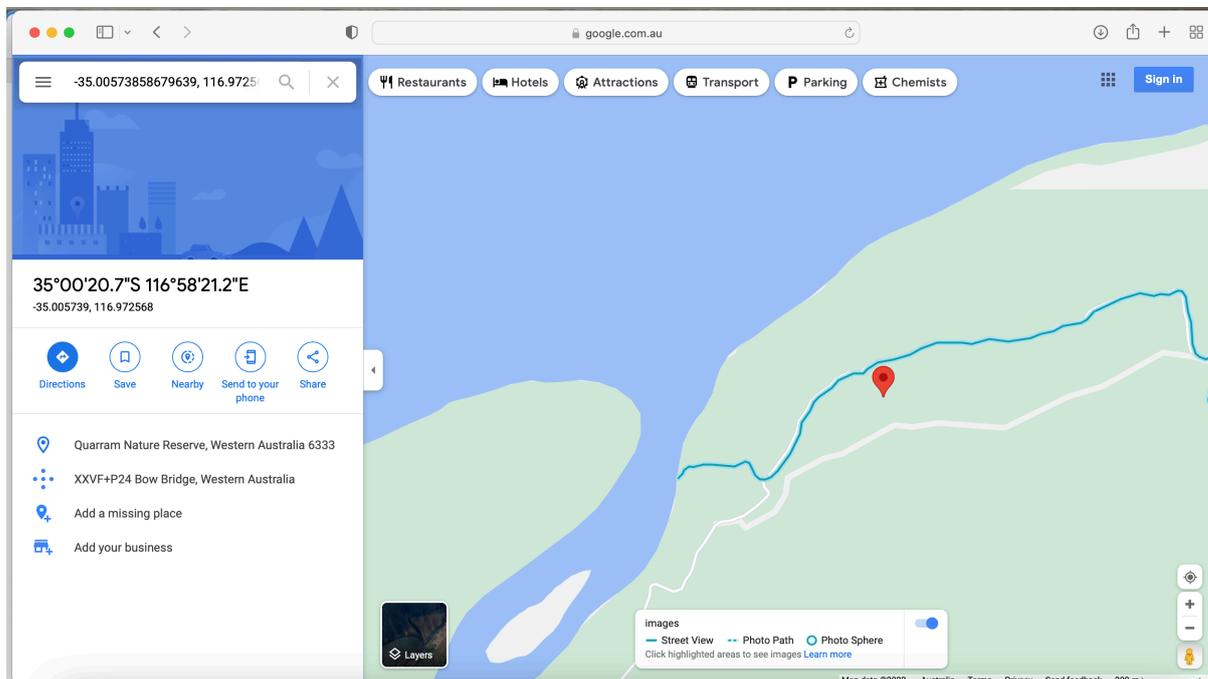
Identifying accuracy relative to the Track using Streetview

The DBCA Google Trekker project in 2018 and 2019 captured about 2/3 of the Bibbulmun Track for Streetview (a function within Google Maps) (see Bibbulmun News #85, page 11). A list of parts of the Track included is provided below.

You can use the Trekker data to identify the accuracy of coordinates relative to the Track. Turn on the Streetview function by clicking on the yellow figure in the bottom right of the Google Maps screen:



Next, enter your GPS coordinates as described above. If you are lucky, the Track should be captured in that area and close by! If the Track appears within 100-200m of the GPS location, you can be confident in the accuracy of the coordinates.



You can view the Streetview footage of the Track. Hover the cursor over the blue Streetview line until the arrow changes to a hand. Then, left click on the Streetview line and the screen will change to the footage at that location.

Google Trekker coverage of the Bibbulmun Track

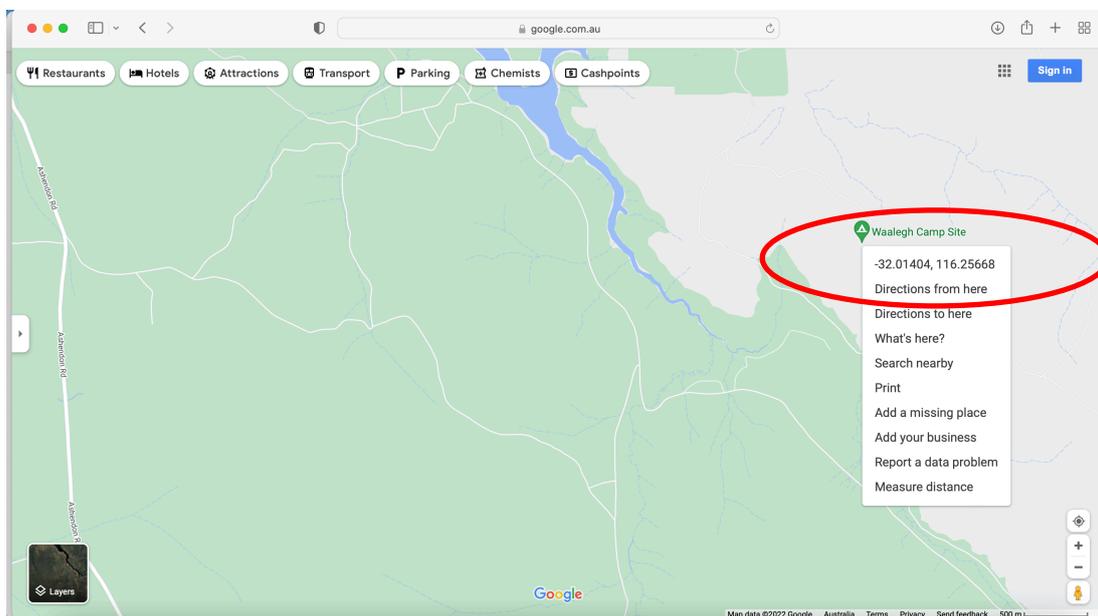
- Northern Terminus to Harvey-Quindanning Road
- Highlights sections: Trees Road to Harris Dam, Lyalls Log Road to Mumballup, Lowden-Grimwade Road to Kirup-Grimwade Road
- Balingup to Chesapeake Road east of Lake Maringup
- Highlights sections: Banksia Track to the east end of Mandalay Beach, Giant Tingle Tree to Nut Lookout, the canoe shed on the east side of the Irwin Inlet channel to the east end of Big Quarram Beach, William Bay Road to Denmark Rivermouth Trailhead, Tennessee Road South to Cosy Corner, Muttonbird Road to Sandpatch carpark, and Bayview Drive to the Southern Terminus.

How to find out the approximate GPS coordinates of a selected location

You can also get Google Maps to give you the coordinates of a particular location on the Track (perhaps you've used Satellite view to identify a feature such as a creek line or rock outcrop).

Navigate the screen to your location as accurately as possible. Do this by dragging (panning) the map and zooming in or out.

Once you're sure you've found the location, RIGHT CLICK exactly on it. You will get a drop-down box with the coordinates as the first line:



LEFT CLICK on the coordinates and they are automatically copied for pasting into an email, Word document, spreadsheet, etc.