

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 (°), 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:

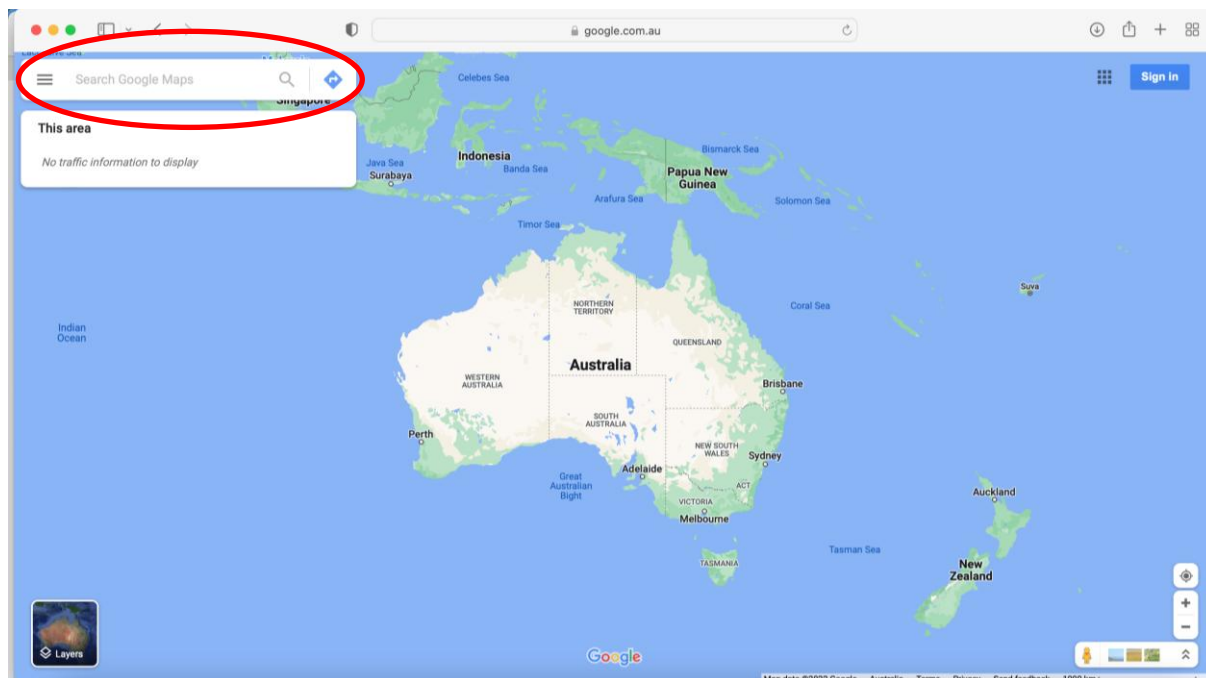
	DMS		DD	
	Latitude	Longitude	Latitude	Longitude
Northern Terminus	-31° 58′ 22.44″	116° 3′ 38.304″	-31.97290	116.06064
Southern Terminus	-35° 1′ 22.404″	117° 52′ 59.592″	-35.02289	117.88322

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

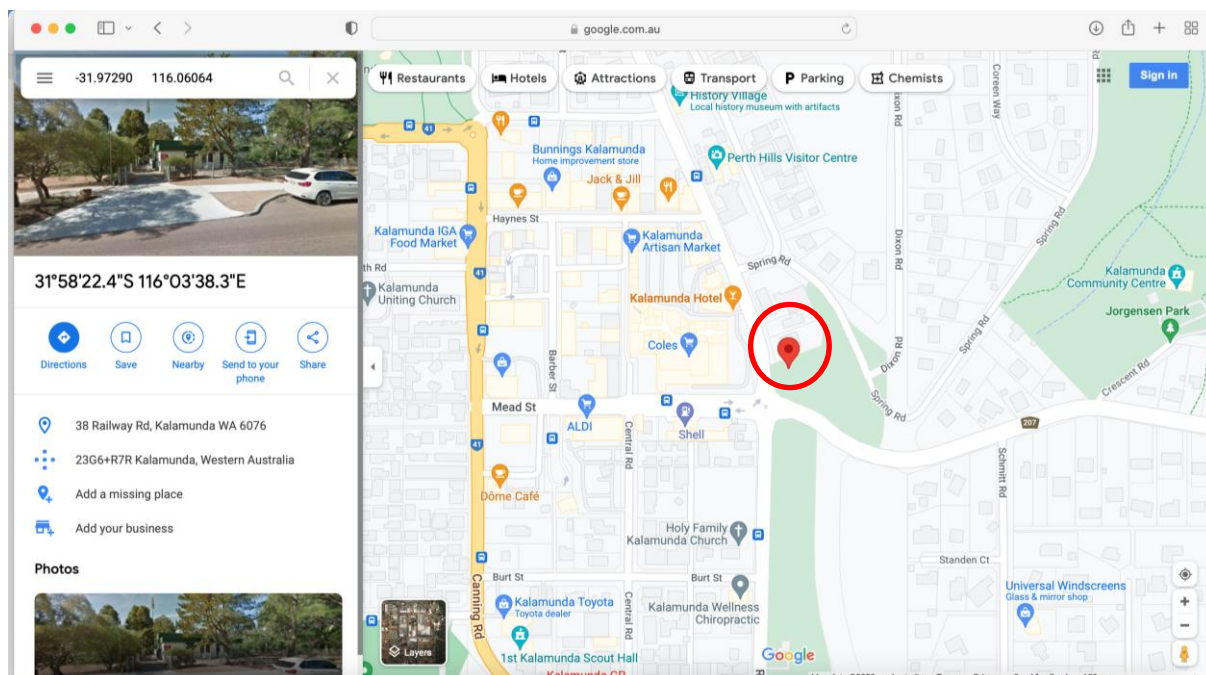
How to pinpoint the location of coordinates provided

If you have some coordinates and would like to plug them into Google Maps to see where the location is relative to the Track, roads, waterways, etc., then follow this procedure:

1. If the coordinates are in DMS format, convert to DD (as above)
2. Open Google Maps (www.google.com.au/maps/)
3. Copy and paste the coordinates into the Search box. Each coordinate can be separated by either a SPACE or a TAB. Tap ENTER.



4. The map view will resize so your location is central, and a red 'pin' will mark the location. At five decimal places, accuracy will hopefully be within tens of metres.

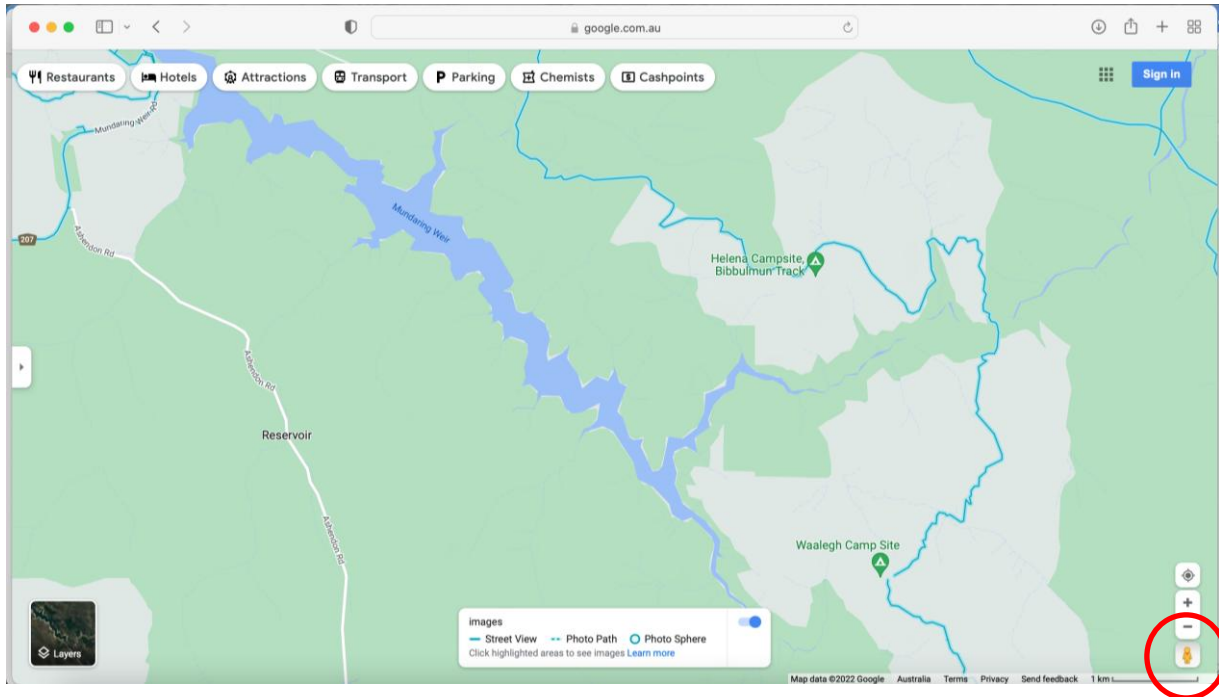


Identifying accuracy relative to the Track using Streetview

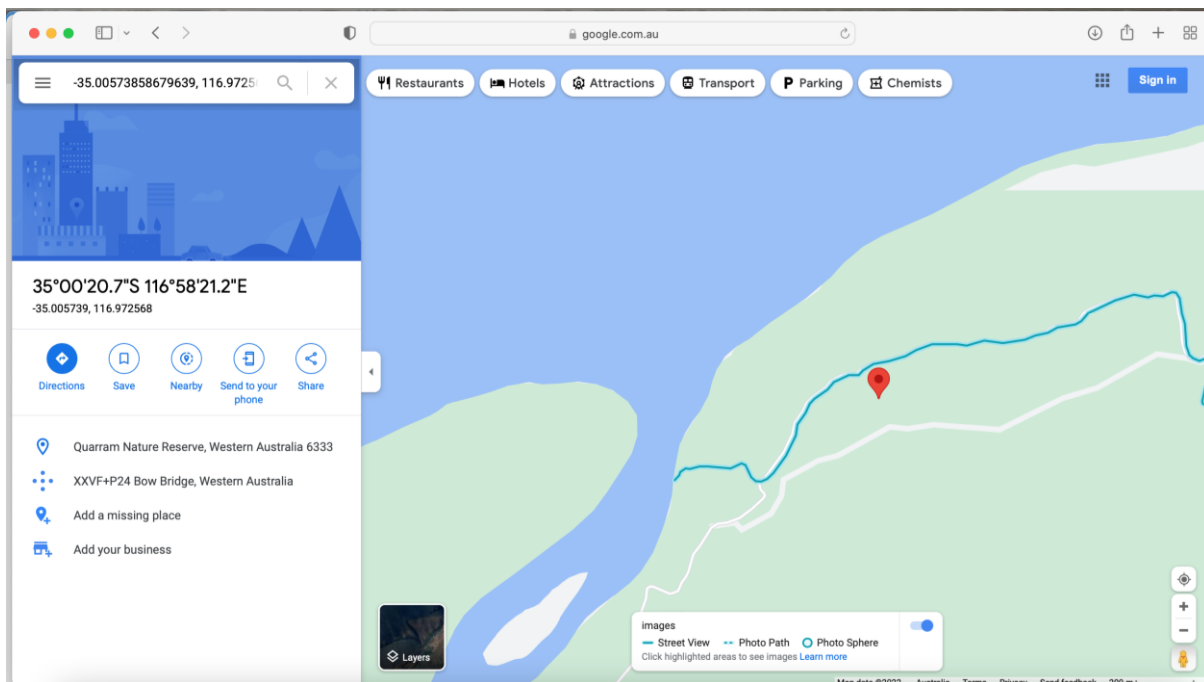
In 2018 and 2019, the DBCA Google Trekker project – with collaboration from BTF volunteers – captured Google Streetview footage of about two thirds of the Bibbulmun Track (see **Google Trekker** for more details).

In locations where the Track was captured, you can use the Trekker footage to identify the accuracy of coordinates relative to the Track.

First, 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.

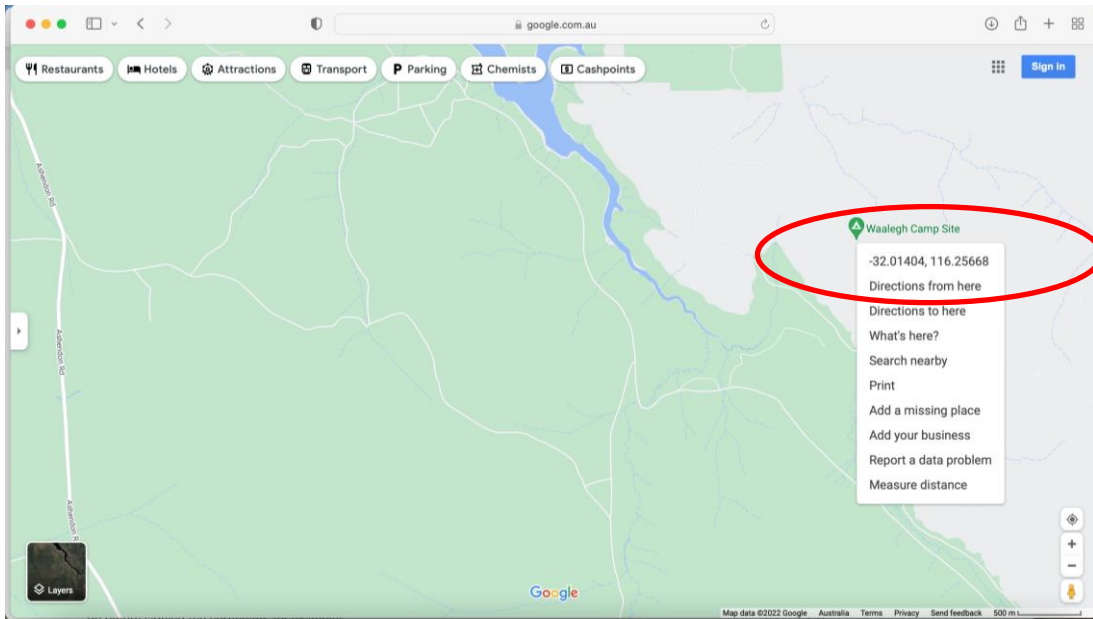


How to find out the approximate GPS coordinates of a selected location

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.