

Survey of Two Gairloch Tumps

Date: 14th July 2020

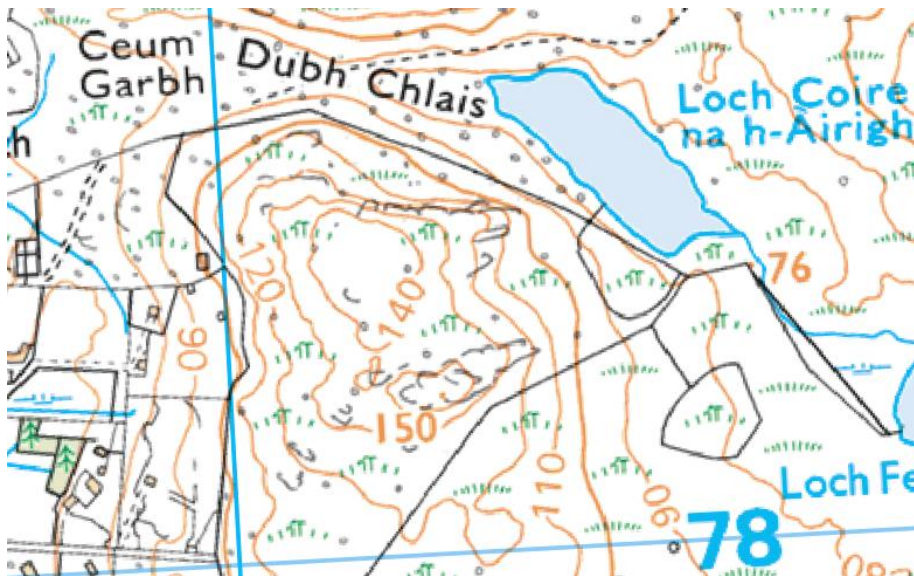
Surveyors: Dave Marshall, Christian Heintzen

Equipment: Satmap Active 20 hand-held GPS, Leica NA320 automatic level, tripod, 5m E-staff

Grid refs: All OSTN15

Torr Liath – hill 9062

This hill lies just to the north of Gairloch between Mihol Road and Loch Coire na h-Airigh.



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OS mapping at 1:25000 shows two 140m ring contours with the southern one containing a 150m spot height from an air survey. Spot heights on larger scale mapping from alternative sources provide conflicting information as to which location is the higher. The objective of the survey was to determine the relative heights of the highest points within these two contour rings. The 150m spot height was visited first and the high point quickly determined to be a small area of exposed rock amongst grass and heather vegetation. The Leica level was set up on the tripod a few metres away and the staff placed in various nearby possible alternate locations to confirm the exposed rock as the highest position.

GR10 of highest point close to 150m spot height: NG 80224 78183

The position of the Leica level as used to confirm the highest point was 0.405m above the summit. When the level was rotated to focus on the area contained within the northern ring contour, it was immediately apparent that this area was higher than the 150m spot height location as the mid-line of the level appeared to be 30-50cm below the highest point. The level and staff were transferred to

the northern summit and the level was set up about 5m from the obvious high point which was identified as mostly grass covered surface rock. A staff reading at the high point showed that the level had been set up 0.324m above the summit. The staff was then carried back to the southern summit where a reading of 1.180m was obtained. The northern summit is therefore 0.856m higher than the southern summit.

GR10 of highest point within northern 140m contour: NG 80158 78289

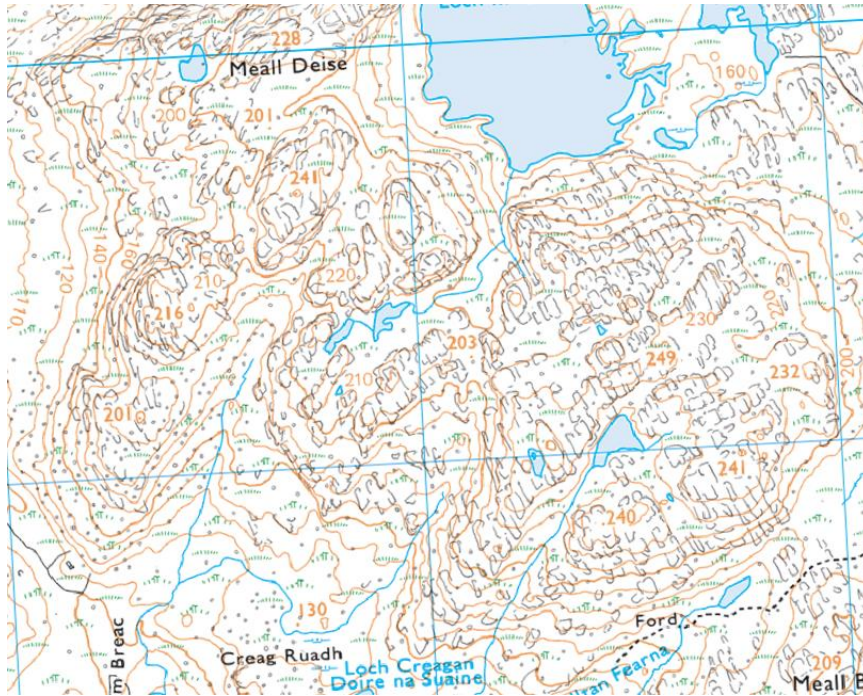
The distance between the two summit positions is approximately 125m. The northern summit is shown in the photograph below with a line indicating the level of the summit at the 150m spot height as seen from there through the Leica level.



Meall Deise – hill 4684

Lying about 3km to the NE of Gairloch and 1.5km WNW of Loch Tollaidh, Meall Deise is a complex area of rocky outcrops with numerous individual summits between 220 and 250m. The highest spot height is 249m although a single, very small, 250m contour ring is shown about 250m to the SW of this.

The objective of the survey was to determine whether there was ground in the vicinity of the 250m contour which was higher than the ground at the 249m spot height location. The 250m contour ring location was visited first and the Leica level set up on the tripod a few metres from the summit. There were two potential summit candidates, an embedded boulder and a rock outcrop a few metres from it. Staff readings confirmed that the embedded boulder was 0.037m higher than the rock outcrop.



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GR10 of the embedded boulder: NG 82304 79026 (see photo below)



Looking at the 249m spot height location from this position showed that there was no ground above the centre line and very little above the lower stadia line of the level. Given the distance between the two locations (approx. 225m), this suggested that 249m spot height location was between 0.5 and 1.0m lower than the location of the 250m ring contour. The distance between the two was judged to be too far for accurate staff reading so a line survey was conducted. This had to be carried out in a zig-zag fashion initially due to the steepness of the descent to the lower ground between the two hills.

Point Number	Horizontal Line			Lower Stadia Line			Upper Stadia Line		
	Backsight R metres	Foresight F metres	Height H metres	Backsight R metres	Foresight F metres	Height H metres	Backsight R metres	Foresight F metres	Height H metres
1	0.282	3.090	-2.808	0.247	3.020	-2.773	0.317	3.160	-2.843
2	0.830	3.730	-2.900	0.800	3.680	-2.880	0.860	3.780	-2.920
3	0.218	4.048	-3.830	0.199	3.998	-3.799	0.237	4.098	-3.861
4	0.582	4.700	-4.118	0.530	4.340	-3.810	0.634	5.060	-4.426
5	2.055	0.484	1.571	1.615	0.397	1.218	2.495	0.571	1.924
6	4.775	0.362	4.413	4.707	0.335	4.372	4.863	0.389	4.474
7	4.528	1.425	3.103	4.403	1.401	3.002	4.653	1.449	3.204
8	3.912	0.068	3.844	3.848	0.048	3.800	3.976	0.088	3.888
	Height difference		-0.725						

The table above shows the line survey data for the 8 readings required.

A previous visitor to the 249m spot height location had noted the summit as a few rocks on an outcrop; this was easily located – see photo below.



Only two other potential summit candidates were identified, a glacial erratic drop boulder to the NE and a rock outcrop to its left as seen from the main summit. Using the level and staff, these were confirmed as being 0.077m and 0.149m lower respectively and are shown below.



GR10 of highest point close to the 249m spot height: NG 82473 79177

Due to the steep terrain, the total distance surveyed was 306m and the 249m spot height location is 0.725m lower than the 250m ring contour location. Lack of time prevented a second line survey in the reverse direction but the result was confirmed qualitatively by looking at the 250m contour location from the final line survey position (0.068m above the spot height summit); this showed the centre line of the level to be significantly lower than the summit boulder.

Summary of findings (all grid refs OSTN15)

Torr Liath

Southern summit - NG 80224 78183. 125m south of the true summit (bearing 145°).

Northern summit - NG 80158 78289 and 0.856m higher than the southern summit.

Meall Deise

NE summit - NG 82473 79177. A few rocks on an outcrop, 225 NE of the true summit (bearing 45°).

SW summit - NG 82304 79026. Embedded boulder 0.725m higher than the NE summit.

Note that the current DoBIH summit is the NE summit from which the SW summit was determined by Abney level to be approximately 1 metre lower. This survey has shown this to be incorrect.