13. Spion Kop Lookout

THE LIVING EARTH
West Coast GeoTrail

Key facts about this geosite:

- **Spectacular vista of surrounding mountains and the township of Queenstown**
- **The geology of the area is composed of submarine lavas, volcanic ash and sediments which formed on the floor of a shallow sea**
- **Extensive faults can be observed along the flank of the ranges in the distance**

How to get there: The Spion Kop lookout is near the centre of Queenstown (Figure 1). From Miners Siding, follow Hunter St uphill and turn left onto Bowes St, then do a sharp left onto Latrobe St to a small car park, from where a short, steep track leads to the summit of Spion Kop (named by soldiers after a battle in the Boer War). The rhododendron-lined track features a rail adit near the car park, and the top of the hill has a pithead on it (Figure 2). From the summit there are extensive views of Queenstown, the Mt Lyell Mine and the West Coast Range.

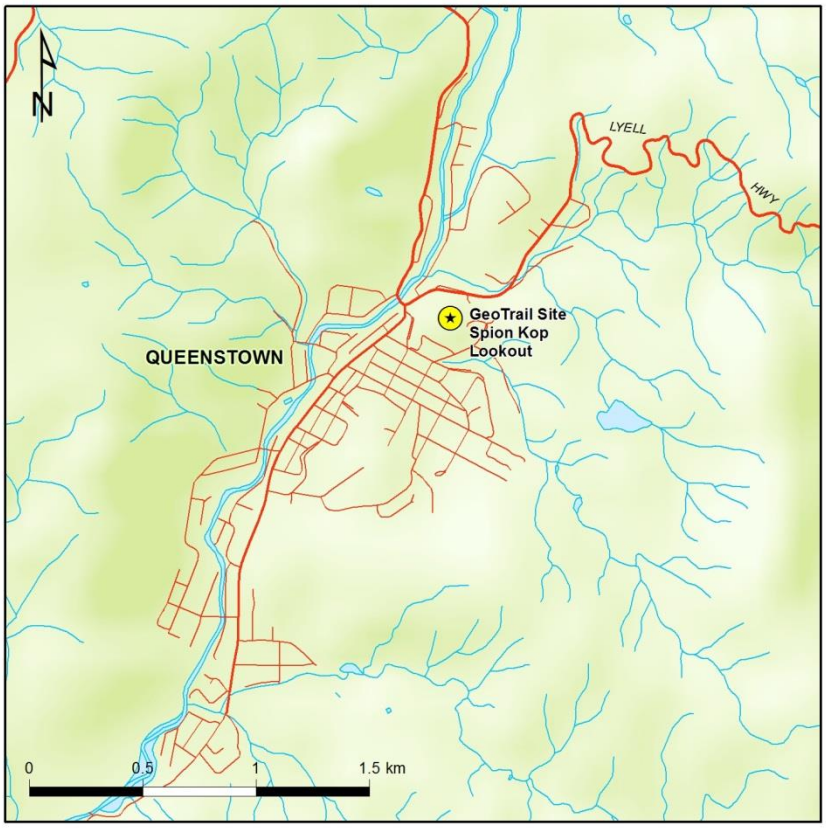

Figure 1. Location of the Spion Kop Geosite.

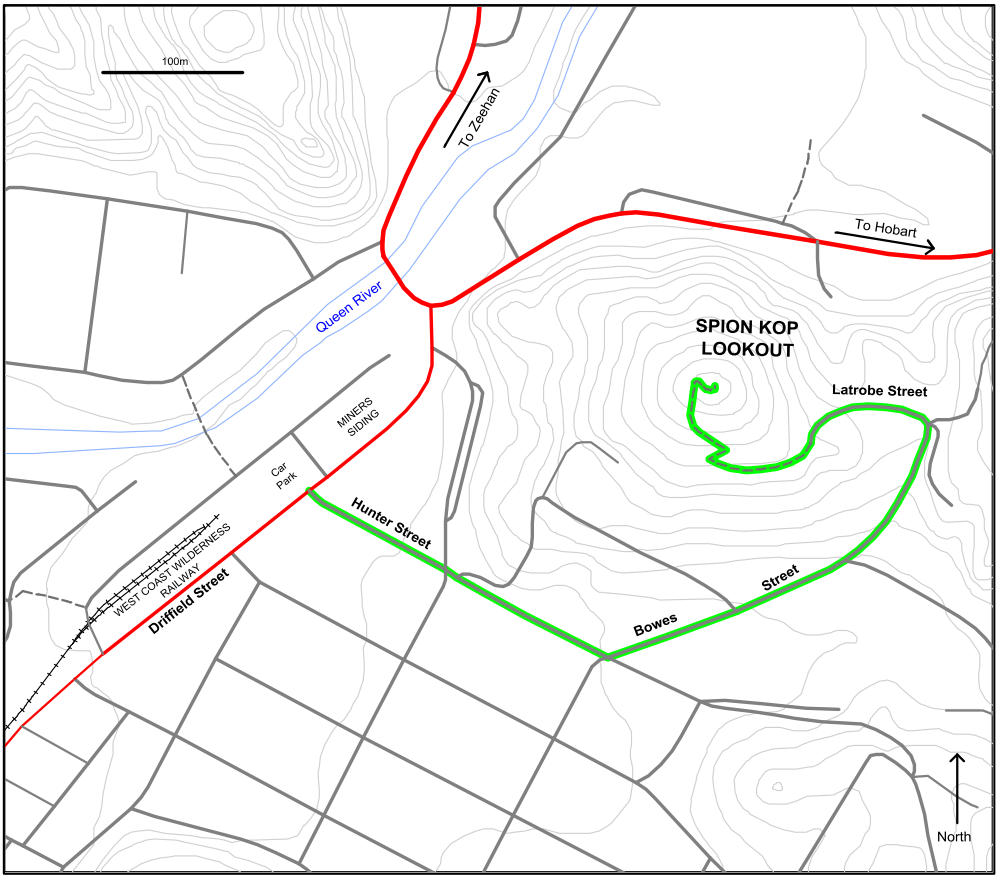

Figure 2. Recommended walking route to the Spion Kop Geosite in Queenstown.

Geosite Description:

Volcanoes: Yellowish rocks exposed on the lower slopes in front of you are the Lyell Schists (Figure 3). They are part of the Mount Read Volcanics, a 200 km long belt of rocks that hosts many of western Tasmania's ore deposits. They were erupted in the Middle Cambrian period, about 500 million years ago, mostly as a thick pile of submarine lavas and volcanic ash and sediments on the floor of a shallow sea.

Ore Deposits: During the volcanism, hot fluids, partly derived from seawater, were drawn through the volcanic pile in a convection system probably driven by a deep body of molten magma. The fluids formed the Lyell Schists by altering the original minerals in the volcanics and depositing pyrite (iron sulphide), more valuable copper and silver sulphides, and gold. In a 5 by 2 km area near Queenstown, the Lyell Schists host about twenty ore deposits, by far the largest of which is Prince Lyell orebody located under the West Lyell Open Cut about 3 km northeast of here. The orebody contains about 300 million tonnes grading 1% copper, 0.3 g/t gold and minor silver and has been mined for over 100 years.

Figure 3. Old Mt Lyell smelter site from Spion Kop.

Rift Valley: Not long afterward, in the Late Cambrian to Early Ordovician periods, a rift valley developed east of here. Today the original fault scarp forms the Great Lyell Fault, which can be seen in front of you. Material derived largely from the erosion of mountains comprising Precambrian quartzites and schists located to the east, filled the valley with boulders and then sand, which today form the Owen Conglomerate, visible as the high mountain peaks on the far side of the Great Lyell Fault. The Owen Conglomerate has a characteristic pink to purple colour due to an abundance of hematite (iron oxide). A major episode of deformation occurred in the Devonian period (about 390 million years ago) and caused extensive faulting and folding of both the Mount Read Volcanics and Owen Conglomerate. The North Lyell Fault formed during this event and is visible on the southeast slopes of Cape Horn Spur (see Figure 4).

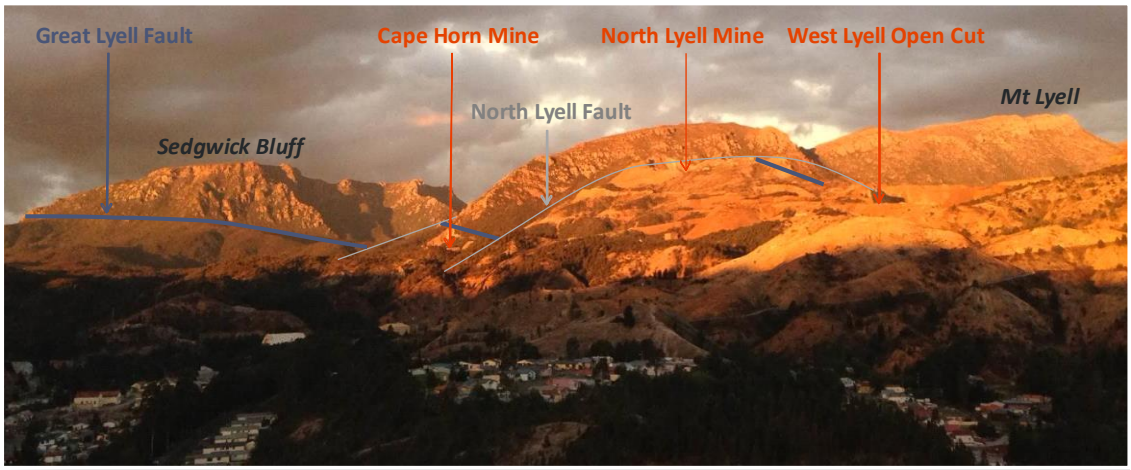

Figure 4. Photograph of the West Coast Range showing the major fault structures.

Glaciers: The ragged skyline in front of you (Figure 5), developed in the Pleistocene epoch, during several episodes of glaciation. In general the resistant pinkish Owen Conglomerate forms the high peaks of Mt Lyell, Mt Owen and Sedgwick Bluff while the less resistant Mount Read Volcanics are clearly evident by their characteristic yellow to brown weathering colours on the lower slopes (Figure 6). The pebble and cobble deposits that cover the summit of Spion Kop are also of glacial origin.

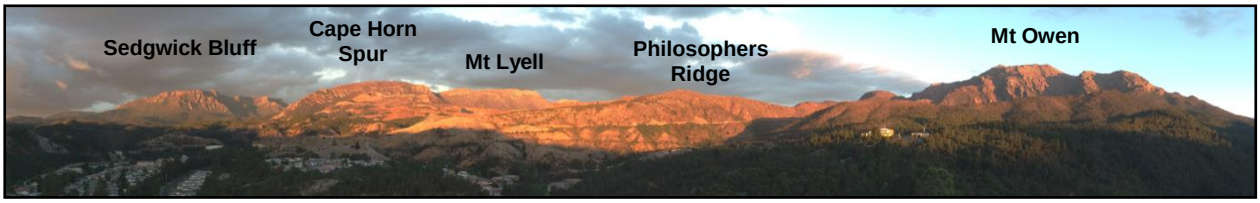

Figure 5. View of the skyline from Spion Kop with the key mountains and ridges indicated.

Figure 6. Mt Lyell and West Lyell Open Cut from Spion Kop highlighting the contrasting appearance of the pinkish Owen Conglomerate on Mt Lyell and the yellow to brown weathering Mount Read Volcanics in the foreground.