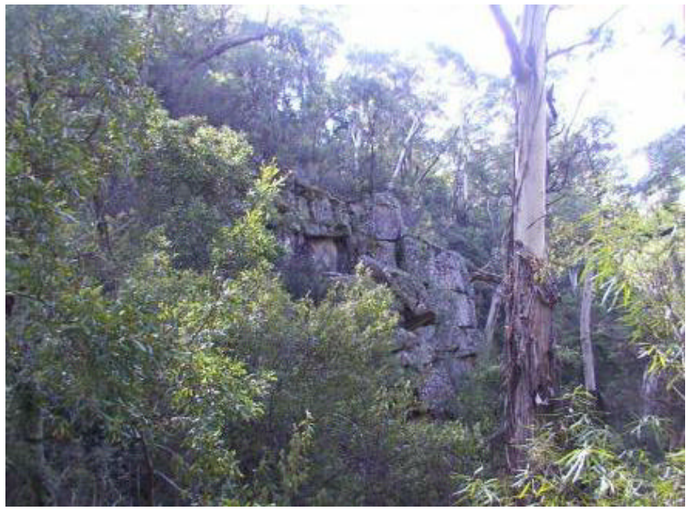
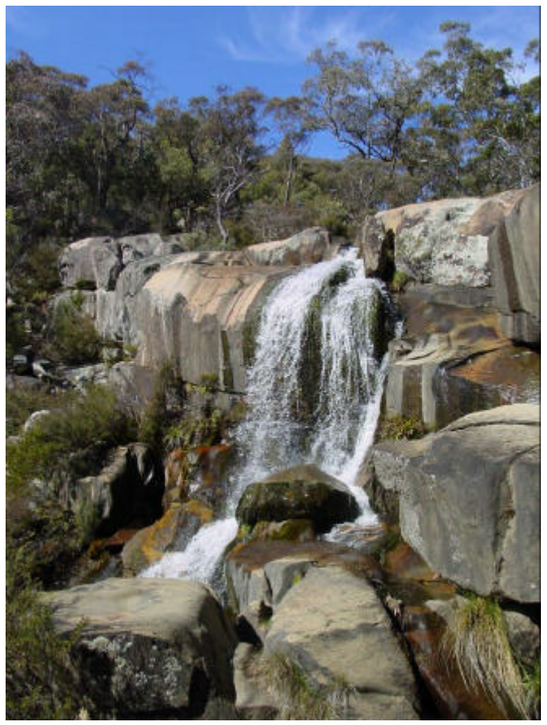
Landscape

This area is a part of the Brindabella Ranges. Gibraltar Creek runs South East from its source at Smokers Gap through the Gibraltar Creek valley to Paddy's River. A wet forest of Mountain



Gum, Ribbon Gum, and the occasional native cherry runs up the sides of the creek. The area is rich in flora and fauna, most of which are native species.

The high ranges that surrounds the Gibraltar Falls is a result of the tectonic history of the area. The rock types in this area are dominated mainly by granite, which forms at a considerable



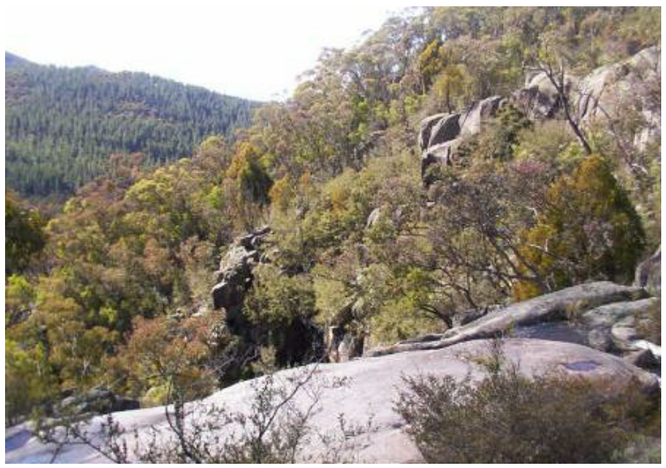
depth in the Earth's crust. Spectacular granite tors are common features along the falls and in the surrounding ranges. The majority of the granite outcrop is deeply weathered. Chemical and physical weathering can be seen through the discoloration of the rocks (they are brown from the iron oxide). Rocky features along the creek and at the bottom of the falls show

physical weathering activities. Soil types that surround the area are mainly clay because

feldspar, which is one of the main components of granite, disintegrates to clay over time. The rate of breakdown of some minerals are quite rapid when compared to others. Feldspar is one mineral that breaks down easily, unlike quartz which is quite resistant to the weathering. This is evidently the case here in Gibraltar Falls; the sand which you will encounter along the sides and at the bottom of the creek are mainly made of quartz.

History

Prior to European Settlement the areas of Woods Reserve and Gibraltar Falls were used as Aboriginal campsites. The area was first reached by Europeans at around 1840 and was named by Webb in the mid 1850s. Around the turn of the twentieth century, the Woods brothers



settled at the site now called Woods Reserve. In more recent times commercial pine plantations have been established in part of the valley.

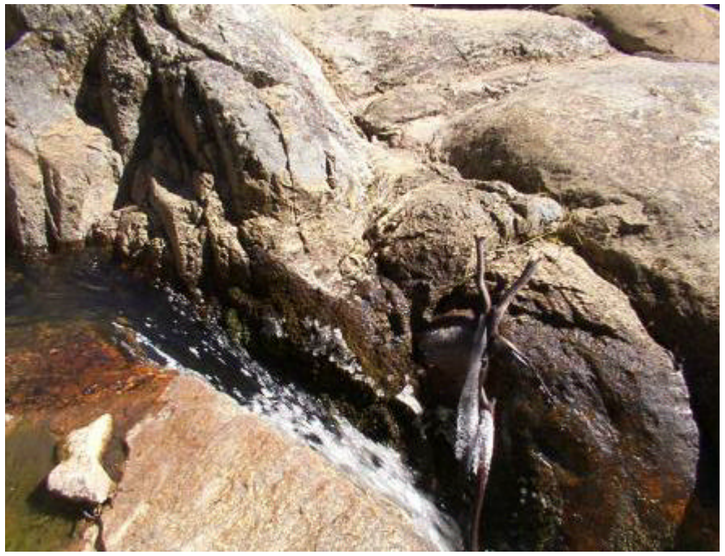
Formation

There are fault lines to the west and the east side of the area. The Ranges that surround this area are a direct result of the faults. Rocks in the area were formed during the Ordovician (500 million years ago), Silurian (450-400 million years ago). The outcrops in the Gibraltar Falls are mainly of the granite and aplite.

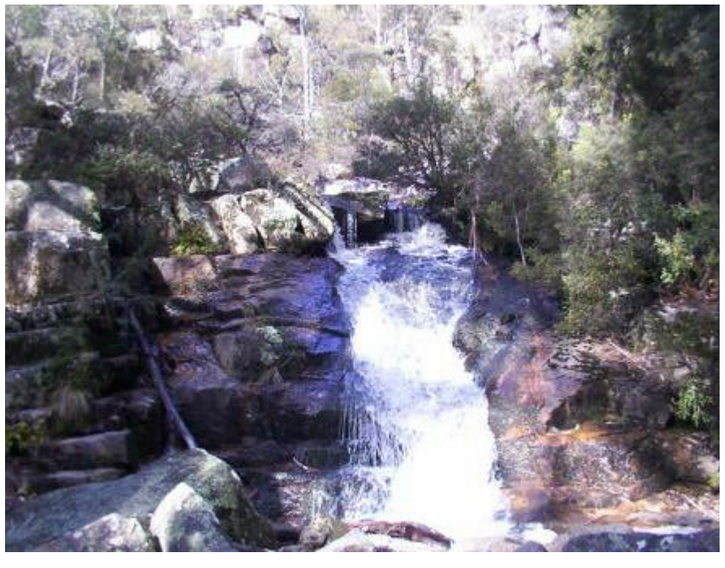
Granite formed when magma was intruded into the sedimentary rocks . Here in the Gibraltar Falls and along the surrounding ranges, exposed granite dominates the features around the area. Granite is a course-grained igneous rock consisting in major part of potassium feldspar (orthoclase and microline), some sodic plagioclase, mica and quartz. Chemical weathering is leading to the decomposition of granite. Chemical weathering converts feldspar and micas into

clay, which is why most of the soil in the area is clay. Chemical weathering is also a process in which quartzs is unlocked from granites. The quartz is very resistant to weathering, which explains the quartz sand deposits along the Gibraltar Creek.

Physical weathering has also played a big role in reshaping the landscape at the falls and the surrounding area. The rocks at the falls show joints and irregular crack features. The irregular cracks are caused by frost wedging during winter. Frost wedging is a mechanism involving the pushing up or apart of rock particles by the action of ice. Sudden changes in temperatures create a crack in the rock. Ice forms within the crack of the rock and will cause it to expand,

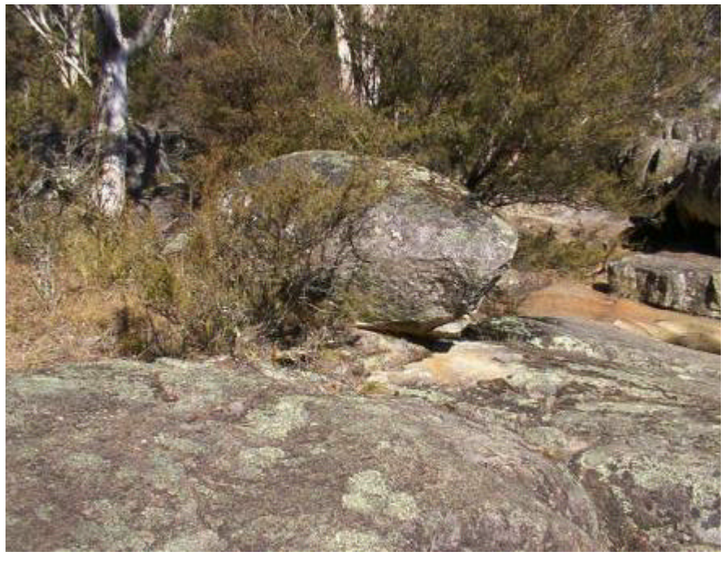


and it will eventually split or form a big crack on that particular outcrop. Boulders at the bottom of the falls are direct result of physical weathering. Water level also contributes to some of the physical features in the rocks and the surrounding landscape. The level of water increases during the winter period in the falls and the increased velocity of the falling water



sets up strong turbulence at the base of the falls, with hydraulic plucking and abrasion creating some potholes and other features along the creek.

Formation of Granite Tors



These large round boulders are called tors. The tors formed when the molten granite was intruded into the sedimentary rocks, it cooled and joints (cracks) formed. When it was exposed at the surface, intense weathering produced thick soils over the granite. Penetration of weathering along joints caused the formation of isolated, rounded, massive rocks (corestones), surrounded by soil. Soil was gradually removed by water and wind, exposing corestones at the surface (geologists refer to these exposed rocks as tors). Once exposed, the tors were subjected to surface weathering which reduced their size while maintaining their round shape. Today, the weathering elements of water and wind continue to erode and shape these tors. The rocks in the Gibraltar Falls and around the ranges area are outstanding examples of tors.

Gibraltar Falls

Map from the ACT Forests' display at Gibraltar Falls.

Landscape Processes Brochure by Daisy Summerfield

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