**Especially made for Waterfalls and Spray Communities**

Named for the Saura Indians who were early inhabitants of the region, the Sauratown Mountains are the remnants of a once-mighty range of peaks. Over many millions of years, wind, water, and other forces wore down the soaring peaks. What remains of these ancient mountains is the erosion **resistant** quartzite **monadnocks**. The word monadnock means isolated mountain. It is used to describe a singular peak or knob of rock that stands dramatically above the surrounding area. A monadnock is the leftover of a larger mountain range and is protected by a hard cap of rock. As a result, a monadnock's **elevation** is much greater as compared to the other landforms nearby. At Hanging Rock, the monadnock is made of quartzite, which is a hard rock that resists **weathering** and **erosion**.

View out over Hanging Rock

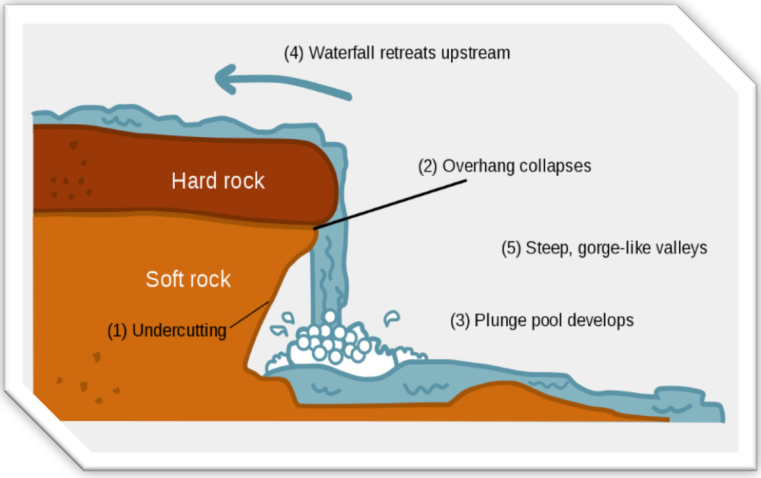
Hanging Rock escarpment

**Steep Elevation Change**

At its highest elevation of 2180 ft., Hanging Rock's exposed rocky outcrops look down onto the Sauratown area of the piedmont 1000 ft. below. Where elevation changes suddenly and there is a long cliff, we call that cliff an **escarpment**. One side of an escarpment may be eroded more than the other side. Where there is elevation change and water there is an opportunity for a waterfall to develop.

**How does a Waterfall Form?**

A waterfall forms when water flows over a rocky **ledge**, sometimes creating a **plunge pool** below. A cascade forms when water flows down a steep rock face. Erosion, the wearing away of earth, plays a part in the



**formation** of waterfalls and cascades. When a stream flows on top of a layer of hard rock with a softer layer of rock underneath, the erosion can form a waterfall. The softer rock underneath is eroded and weathered away, which can make a hard rock ledge and a plunge pool below.

Erosion happens as the stream or river flows across the earth's surfaces and as the water drops off or "falls" off the ledge. Both processes cause softer rock to erode leaving the harder rock ledge exposed. In addition, sediments from the erosion fall into the stream, creating even more abrasion as they churn in the plunge pool and move down-stream. Over very long periods of time, the waterfall will **retreat** upstream creating a steep-sided gorge. Other Earth processes can create waterfalls too. Earthquakes, landslides, glaciers, or a volcano can create a path for the water to flow.

**A Special Ecosystem Thrives Here**

A spray cliff ecosystem can occur in combination with waterfalls, and along streams in areas with escarpments and resistant rock. Spray cliff ecosystems are areas with long-term wetness caused by the waterfall spray. The **exposure** to large amounts of water also limits temperature extremes and keeps **humidity** high. Many waterfalls also have an overhanging ledge, where light levels are low. These areas are generally steep, rocky and have limited soil. Most spray cliff ecosystems are in narrow gorges, where the land **profile** shades them from drying sun and protects them from wind. At Hanging Rock, unique plant species of lichen, moss, liverwort and ferns thrive on the cliffs in this special **micro-climate**.

Spray Community on the Cliff

**How Should We Enjoy our Waterfalls and Monadnocks?**

Safety around the steep waterfalls is very important. Stay on the trail when exploring waterfalls because of the steep conditions and moist environment the rocks near a waterfall can be very slippery. Avoid climbing the waterfall. The spray community plants can easily be **trampled**. Following the safety rules protects the waterfalls special spray communities and keeps people safe.