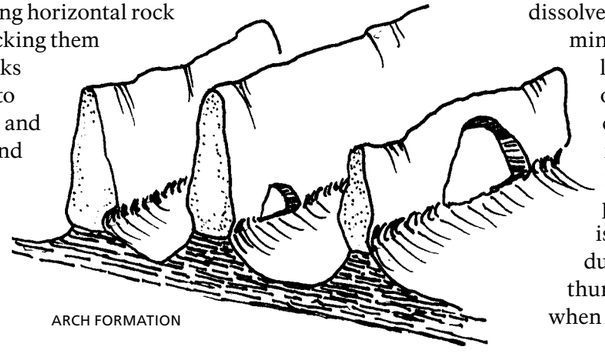
A Changing Landscape: Naturally

The Devils Garden Trail leads you between sheer walls of sandstone fins, which, we hope, will make you wonder about how they were made. Simply put, vertical cracks in a thick layer of sandstone are being eroded and widened by water—scoured by runoff from rainfall or snow melt, or pried and exfoliated by ice expansion.

We are fortunate to be here at this precise time in earth history, because these unusual stone formations probably will last a few thousand years, not long as geologic time goes. The events that set the stage for arches, fins, and other intriguing rock shapes have taken place over millions of years. Beginning about three hundred million years ago a series of oceans came and went in this area. As the seas evaporated, they left salt beds that were five thousand feet thick in some places. Over subsequent millions of years, deep accumulations of sands, silts, and clays were blown and washed down upon the salt deposits. As it was squeezed around by uneven weight and pressure, the salt was pushed up into what geologists call an anticline. Later tectonic events pushed some of the overlying horizontal rock layers upward, cracking them vertically. The cracks allowed rainwater to reach the salt beds, and the salt dissolved and seeped away.



ARCH FORMATION

As the salt receded, the overlying rock burden sank with it. Arches' Salt Valley is an example of the resulting landform. At the edges of the valley the cracked rock was pulled apart slightly. Rain and snow could even more readily soak into the vertical cracks, dissolve the cementing minerals, and loosen grains of sand to be carried away by running water. (The erosional power of water is demonstrated during summer thunderstorms when the normally dry stream channels surge with raging water, so loaded with sediment that water and rock are the same color.) As the cracks widen, tall fins are left standing.

Landscape Arch in the 1950s. Oval indicates area from which rock fell in 1991.

In some instances, weak zones in fins are either dissolved by naturally occurring acids in rainwater or wedged apart by freezing and thawing water, and openings develop. These openings evolve into the varied and splendid arches that capture our admiration.

Landscape Arch, one of the world's longest stone spans, stretches 306 feet (93 meters), yet is only about 11 feet (3.3 meters) thick at its center. It was almost five feet thicker until September 1991 when a few small pieces of the arch began to fall. Within seconds a 60-foot-long (18-meter-long) slab of rock dropped from the underside of the arch's thinnest section. Some of the large boulders on the slope beneath the arch are remnants of this event.

As we peer through arch openings, we are reminded of the dynamic nature of our earth. Some of the sand beneath our feet could be majestic arches of long ago. In time, today's familiar arches, buttes, and spires will rejoin the shifting sands and perhaps one day become the ingredients for another awe-inspiring landscape.

A Changing Landscape: Not-So-Naturally

"Each and every one of us plays a part in the changes that ceaselessly work to maintain the balance of the Earth. . . Our individual contributions are tiny but the sum of all human activities is large."

Your actions will help determine whether Nature or people's activity will be the primary cause of change here in Devils Garden. Park managers face the challenging task of preserving the parks from pressures of rapidly increasing numbers of visitors. They must also address the effects out-of-park developments have upon park resources. Your support and understanding of management policies are critical to their success, and your ideas for management strategies to deal with these impacts are always welcome!

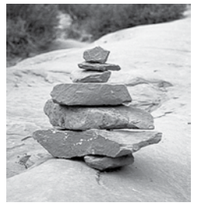
The Hidden Garden

A huge garden grows in this part of the Southwest. It is a living crust that covers much of the soil of a 130,000-square-mile area. Biological soil crusts are made up of a community of tiny organisms: cyanobacteria, algae, moss, fungi, and lichen. These crusts are absolutely essential to the health of the desert ecosystem. They hold the grains of sandy soil together, retain moisture, and make nutrients available to vascular plants.

Biological soil crust needs five to ten years of undisturbed growth before it even becomes visible as an irregular, blackish mat on the soil surface. A single footprint left by a careless hiker can destroy decades of growth! Please stay on marked trails. If you must leave the trail, walk on bare rock or in dry streambeds. These are the only places you can walk without killing this vital resource.

Compare the photograph to the left with the slope under Landscape Arch today. The injury done when people leave marked trails is vividly demonstrated here, and will take many decades to heal. "Social trails" kill vegetation and invite erosion not only of biological soil crusts, but of the desert landscape in general.

Trail Information



Trails are marked with small piles of rock called cairns. To avoid becoming lost, sight the next cairn before continuing.

The first 0.8 mile (1.3 km) of the main trail, which is graveled and well graded, winds among the tall fins to a spectacular view of Landscape Arch. The trail beyond becomes more challenging. It has sloping surfaces, goes across or on top of sandstone fins and in close proximity to drop-offs. Sandstone is often called slickrock and can be slippery even when dry. Hiking the primitive loop requires that you walk on steep, sloping sandstone surfaces.

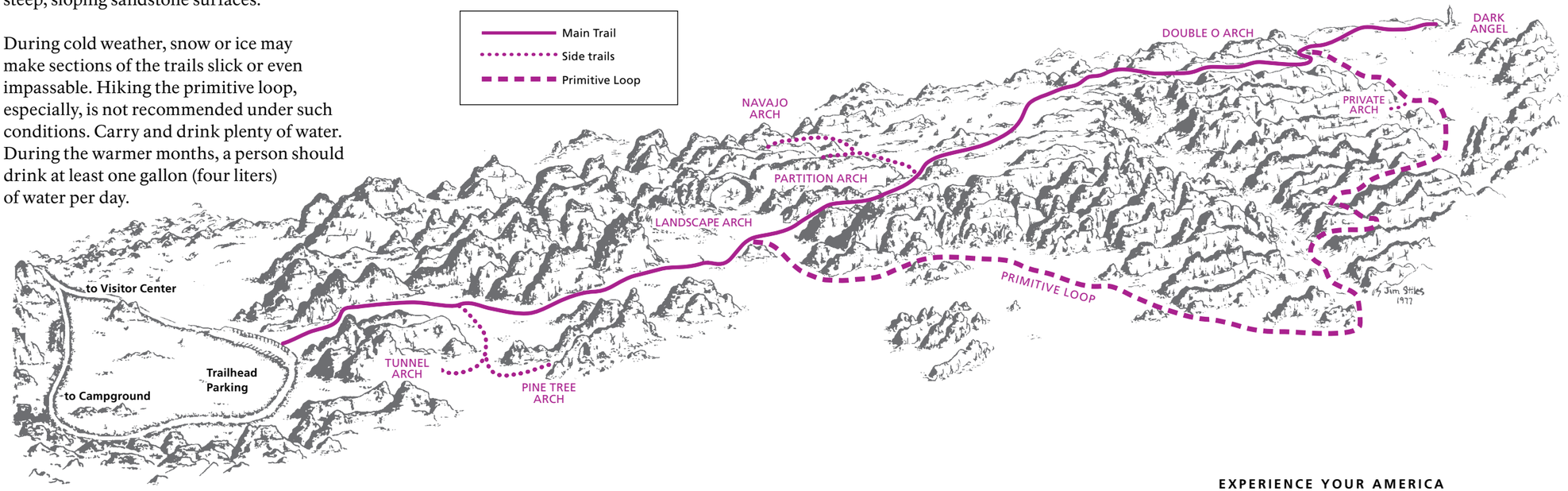
During cold weather, snow or ice may make sections of the trails slick or even impassable. Hiking the primitive loop, especially, is not recommended under such conditions. Carry and drink plenty of water. During the warmer months, a person should drink at least one gallon (four liters) of water per day.

Distances:

Trailhead to Landscape Arch and return	1.6 mi/2.6 km	Easy terrain
Trailhead to end of main trail and return	5 mi/8 km	Moderate terrain
Trailhead to end of main trail and return via Primitive Loop	5.9 mi/9.5 km	Difficult terrain

If you take the side trails to Pine Tree and Tunnel Arches, add 0.5 mi/0.8 km.
If you take the side trails to Navajo and Partition Arches, add 0.8 mi/1.3 km.

Please stay on the trail to protect the fragile desert soils and biological soil crusts.



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Devils Garden

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