



IN ORDER TO REDUCE OR PREVENT THE RISK OF SERIOUS HEAD INJURY OR DEATH, STATE LAW REQUIRES THAT ALL BICYCLISTS UNDER AGE 18 WEAR AN APPROVED HELMET WHILE RIDING ON TRAILS AND ROADWAYS. THE DISTRICT ALSO STRONGLY RECOMMENDS THAT ALL EQUESTRIANS AND BICYCLISTS WEAR HELMETS AT ALL TIMES.

BICYCLES ARE NOT PERMITTED IN HUCKLEBERRY REGIONAL BOTANIC PRESERVE.

DOGS AND HORSES ARE NOT PERMITTED IN HUCKLEBERRY except passing through on the Skyline National Trail. **DOGS MUST BE UNDER VOICE CONTROL AT ALL TIMES. HORSES MUST STAY ON THE SKYLINE TRAIL.**

LEGEND

- Hikers, Horses & Bicycles
- - - Hikers & Horses
- ▲- Skyline Trail/Bay Area Ridge Trail-Hikers & Horses
- Hikers Only
- ← 28 → Mileage Between Points
- ==== Paved Road
- P** Parking
- RR** Restrooms
- WC** Visitor Center
- W** Drinking Water
- ?** Information
- A** Backpack Camp
- 4** Self-Guided Tour Stops
- |** Gate, No Vehicle Access

North ↑

0 1/4 1/2 Mile

Rev. 1/13

Contour Interval 20 feet in Claremont Canyon, Redwood, and Sibley triangle west of Thorndale Dr. Contour interval 10 feet elsewhere.

A SELF-GUIDED TOUR OF ROUND TOP VOLCANOES

By Stephen W. Edwards
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Robert Sibley Volcanic Regional Preserve features a complex volcanic center that was the source, 10 million years ago, of most of the lavas that underlie the ridges from Inspiration Point in Tilden Regional Park to Moraga. Round Top consists of lavas, breccias (unsorted mixtures of fine and coarse volcanic debris) and tuffs (volcanic ash that has become stone) that once filled a volcano.

Though Round Top was once the infilling of a great crater, it stands out today because it was originally surrounded by sedimentary rocks of the Orinda Formation, which have eroded away. During the past 10 million years the Berkeley Hills were uplifted due to strains on the Hayward and Moraga fault systems. This uplift folded the rock formations, and the Round Top vent complex was tilted on its side. Hence, folding and erosion have exposed a cross section of a volcano, right down to its roots.

The blocks of stone scattered around the flanks of Round Top are basalt lava, a hard, dense, dark volcanic rock. Lava from the vent has been dated at UC Berkeley; the oldest is 10.2 million years old.

A great diversity of volcanic phenomena is preserved for study at Sibley. Basaltic dikes (feeders of the vents), tuff-breccias (ash containing a jumble of blocks and chunks of lava), lava flows, red-baked cinder piles, air-fall tuffs, and the major vent itself can all be seen in an easy hike. The numbered descriptions below correspond to stops indicated by numbered posts along the trail.

- 1** Walk up the paved road to the EBMUD water tank to see a dark basalt dike, an important feeder of lava to the crater, that cuts through a sequence of tuff-breccias (grayish brown) and pebbly mudstones (light gray), inside and near the crater bottom. The mudstones indicate ponding of water; the tuff-breccias are the remains of landslides and blockfalls into the pit from the surrounding walls.
- 2** This pit was made by quarry operations in which huge amounts of massive basalt lava were removed. The pit exposes the interior of the Round

- 3** This roadcut exposes Orinda Formation river gravels, sands, and mudstones. The red (when moist) streaks and layers in these river beds were caused by oxidation of iron in the sediments. Such varicolored "redbeds" sometimes contain fossils of plants and animals. Elsewhere in the Preserve, bands of more intense red are found at the tops and bottoms of lava flows, where iron was oxidized and reddened by baking and steam action; these bands are called "bake zones."

- 4** Before you is a wall with basalt on the left and Orinda mudstones on the right. The bedding in the mudstones gives the appearance of drag-folding resulting from relative uplift of the lava occurring during the past 10 million years. Alternatively, the disruption of the mudstones may have occurred earlier, at the time of volcanic activity. This site was close to, or was in, the wall of the volcano, and would have been subject to slumping, sliding, and plowing.
- 5** Massive basalt was removed from this major quarry pit. The north wall shows a set of thick lava flows tilted on edge, nearly vertical. The well-defined layers near the top of the face are jointing-units resulting from shrinkage caused by cooling. They are analogous to the basalt pillars of Devil's Postpile in the southern Sierra.

Continued on reverse