

# Halema'uma'u Trail Guide



Hawai'i Volcanoes  
National Park

## Journey into Kīlauea's fuming caldera, where the Hawaiian experience is linked to the land.

Stops along this trail reveal the story of changing life within Kīlauea caldera. The path leads through rain forest to the heart of one of the world's most active volcanoes.

**Start:** Crater Rim Trail, behind Volcano House

**End:** Kīlauea Caldera Floor

**Map:** See the center pages

**Walking distance:** 1.8 miles (2.9 km) *round trip* to stop **10** and return

**Estimated walking time:** 1-1.5 hours *round trip*

**Descent/Ascent:** The trail drops 425 feet (130 m), return the same route, or via Byron Ledge, Kīlauea Iki and Crater Rim Trail (1 mile longer).

**Trail rating:** Moderate

### For your safety and health:

- stay on the trail
- avoid cliff edges
- wear sturdy walking shoes
- carry drinking water
- take protective gear for sun and rain

### TRAIL CLOSED BEYOND STOP 10

Due to high levels of sulphur dioxide gas and the current explosive nature of Halema'uma'u, the caldera floor is closed and inaccessible **beyond trail stop 10.**



## Trailhead

Follow this historic trail and experience the wonders of Kīlauea volcano.

Since it was established in 1846, guests of Volcano House have used this trail to hike into the caldera. Between 1865 and 1924, Halema'uma'u Crater usually held a molten lake of lava. Guests would be treated to views of flowing or fountaining lava and often a churning lake of molten rock.

Tourists of the era enjoyed the eruptions but showed little respect for the local culture. They fried eggs on the lava, lit Cuban cigars in hot cracks and scorched the edges of



postcards to send home. The Volcano House supplied the eggs and postcards, as well as guides who kept hotel guests safe while performing these stunts.

Native guide Alex Lancaster (left) led hundreds of Volcano House guests across the caldera. He rescued dozens more, including the writer Samuel Clemens (Mark Twain). As the Hawaiian Volcano Observatory was being established in 1912, Lancaster was hired as a guide and general roustabout. His experiences close to Kīlauea's activity made him a great assistant to the scientists.





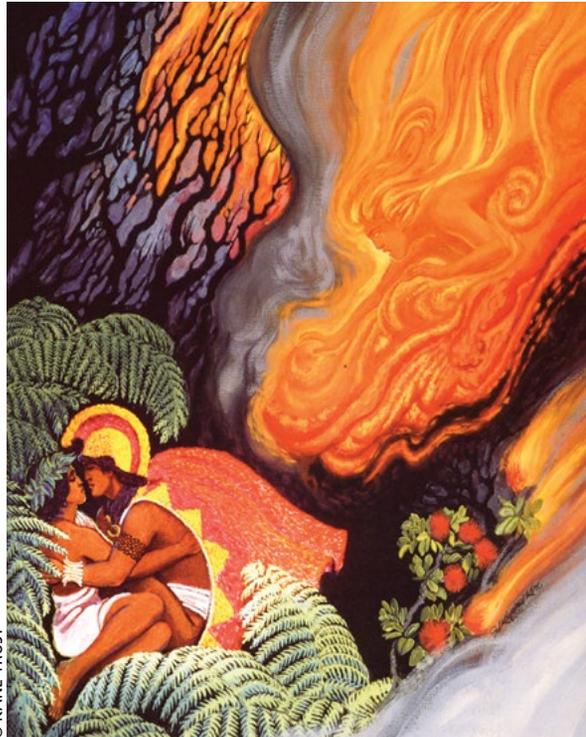
Hawaiian stories, legends and chants reflect the beauty and complexity of the forest and the land.

According to Hawaiian oral tradition, the caldera formed during an epic battle between Pele, the Hawaiian volcano deity, and her younger sister, Hi'iakaikapoliopole (Hi'iaka).

Pele had sent Hi'iaka to fetch her lover, Lohi'au, from Kaua'i. Upon returning, Hi'iaka discovered that Kawahine'aihonua, (Pele, *the woman who eats the land*) had broken her promise and set fire to Hi'iaka's beloved 'ōhi'a forests.

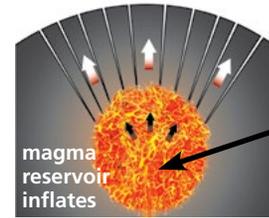
To avenge this transgression, Hi'iaka made love to Lohi'au at the summit of the volcano, in full view of her sister. Pele lashed out in anger and buried Lohi'au beneath a flood of lava.

Driven by remorse, Hi'iaka dug furiously to recover the body. Rocks flew as she excavated the great pit. Their brother stopped Hi'iaka from digging deeper, for doing so would surely have let in water and put out the fires of Pele. Thus the great caldera of Kīlauea was formed.



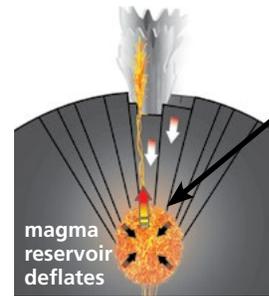
© KANE TRUST

The story of Pele and Hi'iaka documents the explosive formation of the caldera in the late 1400s.



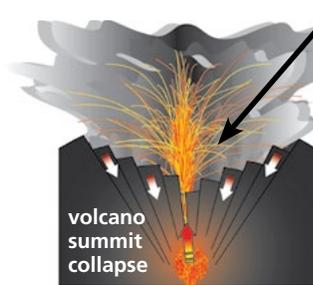
Kīlauea did not blow off its top. It collapsed inward upon itself!

Within the heart of Kīlauea, a great reservoir swells with magma prior to an eruption.



In the late 1400s however, large volumes of magma erupted or moved elsewhere in the volcano, emptying the magma reservoir.

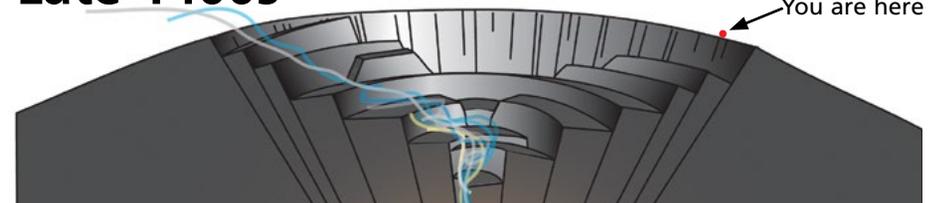
Its internal support withdrawn, the top of the mountain collapsed, accompanied by explosive eruptions.



Great blocks of the old summit slumped inward. The gaping depression that formed was ringed with stepped terraces descending to its floor.

The resulting caldera was over 1,600 feet (500 m) deep and 3 miles (5 km) wide.

**Late 1400s**



**Look in the distance along the caldera's rim to see the Hawaiian Volcano Observatory and Jaggar Museum.**

They are more than 2 miles (3 km) away and offer the best views of volcanic activity that might be occurring within Halema'uma'u Crater.

2

“E nihi ka hele . . .  
mai pūlale i ka ‘ike a ka make.”  
*Watch your step . . . and don't let  
things you see lead you into trouble.*

Hawaiian proverb

People worldwide recognize the cleansing qualities of steam. Like other cultures, many Hawaiians believe in going to the house of their god with a clear mind, free from dark or distracting thoughts. Devout believers also hi'uwai, prepare their bodies by cleansing with a ritual bath in the ocean or a sauna in volcanic steam, the breath of Pele.



© SCOTT SUCHMAN, WOLF TRAP FOUNDATION FOR THE PERFORMING ARTS

Where does this steam come from? It is created when rainwater percolates down through thousands of cracks until it reaches hot rocks. The water flashes to steam, and rises through fissures to exit the ground at a scalding 140–200° F (60–94° C)!

The ground surface around a steam vent is often no more than a thin crust that weakly covers steam-filled pockets and deep cracks. In 1992, a young woman slipped into a nearby vent and was scalded to death. “E nihi ka hele” and stay on the trail.



© JACK JEFFREY



**Passionate songs and constant chatter of the 'apapane fill the forest.** One joy of hiking in the forest is hearing the many songs of the 'apapane. Listen for this honeycreeper's whistles, buzzes, clucks, trills, and squawks. Its wings whir as it flies overhead.

3

Hawai'i's most wide spread tree is the sacred 'ōhi'a. Its lehua blossoms inspire ha'i mo'olelo (storytelling) and hula (dance).

In a popular contemporary story, a royal couple, 'Ōhi'a and Lehua, were once inseparable lovers. Pele becomes attracted to the handsome young prince, 'Ōhi'a, and appears to him as an enticing young woman. But when she asks for his love, 'Ōhi'a remains true to Lehua and respectfully turns down her advances. Enraged by the rejection, Pele transforms 'Ōhi'a into the rough-barked tree.



NPS / DAVE BOYLE

Lehua pleads with other gods to turn 'Ōhi'a back to his human form. They are reluctant to interfere with Pele's design, but are sympathetic to Lehua's plight. Instead of changing 'Ōhi'a back into a man, the gods transform Lehua into the exquisite blossom that adorns the masculine tree. In this way, the two lovers are inseparable for all time.



NPS / JAY ROBINSON

The 'ōhi'a is also believed to be the embodiment of Laka, a goddess of hula. The nodding of the branches inspire hula dancers, who mimic their movements and adorn themselves with lehua blossoms.

4

Hāpu'u tree ferns seem to live forever. The elders nurture the keiki (children) of the forest.

Hāpu'u grow and reach skyward for 50 to 100 years. When its own weight becomes too great, it crashes to the forest floor. Holding onto life, the fallen giant sends out new roots. Its leafy fronds turn upwards towards the light and the hāpu'u slowly continues to grow as a tree.

The tree ferns around you may live for over a thousand years. "Walking" through the forest, they repeat the seemingly endless cycle by continuing to grow upright after they fall. Look for their preexistent trunks at the base of each hāpu'u. Since they are no longer needed, the old logs slowly rot away and provide moisture and nourishment for a variety of new plants. Mosses, ferns, and tree saplings quickly shroud the rotting logs, vying for their place in the shade.

Hāpu'u is believed to be a kino lau (body form) of the earth goddess Haumea. Like Hāpu'u, when Haumea ages, she defies death and is restored to youth. Haumea also gave unusual birth to other creatures, each emerged from different places on her body, reminiscent of how plants sprout from the trunks of hāpu'u.

Rest among these forest elders and listen to their ancient songs and stories.



NPS / DAVE BOYLE

5

Young fronds of the 'ama'u fern display Pele's fiery red brand.

'Ama'u ferns may look like their bigger cousin, hāpu'u, but the difference is simple to see. 'Ama'u fronds branch only once, hāpu'u branch twice.

According to legend, the 'ama'u fern is a kino lau (body form) of Kamapua'a, the pig-man demigod who changes his form into pigs, fish, or plants. Rain and lush green forests are his domain. For awhile, he and Pele lived as an unlikely husband and wife.

But they did not always get along. In one story, Kamapua'a comes to the caldera to woo the goddess, but Pele rejects him with contempt. In the ensuing battle, Kamapua'a gains the upper hand and nearly drowns Pele's fires with his relentless rain. Gasping for life, Pele summons power from her family and focuses it against her antagonist. Smarting from his burns, Kamapua'a changes into an 'ama'u fern to escape from Pele's wrath.



NPS / JAY ROBINSON



**Look for 'ama'u's fiery young fronds.** They are often pink or red, evidence of Kamapua'a's epic battle with Pele's scorching lava.



© KANE TRUST

6

Alien ginger removal revealed evidence of a notorious visitor and his noteworthy traveling companion.

The destructive weed, Himalayan Yellow Ginger, had invaded the forest along this trail. They grew thick root masses and choked out native plants on the forest floor. In efforts to restore the forest, volunteer stewardship crews have cleared most of the weeds from this area. Native plants have returned and a healthy forest is evident.



NPS / JAY ROBINSON

After the work crews exposed the large boulder just off the trail, hiker Hugh Montgomery noticed mysterious writing on the rock's face: "B Boyd", "J Webster", "Yacht Wanderer", and "51".

His curiosity piqued, Montgomery's research revealed that born a Scot, Benjamin Boyd sailed to Australia on his impressive yacht, Wanderer, in 1842. After a series of failed entrepreneurial projects, Boyd suffered financial and social humiliation and sailed to California to try his luck in the gold rush of '49. Boyd befriended artist John Webster, and the two sailed to Hawai'i in 1851 and hiked this trail into the caldera to see the "terrifying" wonders of Pele. During their visit, they marked their presence by chiseling their names on this boulder.



OSWALD WALTERS BRIEFLY, 1846, COURTESY NATIONAL LIBRARY OF AUSTRALIA

The two next sailed to Guadalcanal where Boyd was killed by natives. Webster survived the attack, took command of the yacht and sailed for Australia where he ran onto a reef and lost the ship. He later chronicled his adventures in "The Last Cruise of the Wanderer" and settled in New Zealand where his family and legacy reside to this day.

7

"I walea ka manu i ka 'ula o ka lehua"  
The bird is attracted by the *redness of the next lehua.*

Hawaiian proverb



© JACK JEFFREY

The Hawaiian proverb above means that a young person who has a special someone is often attracted by the charms of another. In other words, "the grass is greener on the other side."

Hawaiians noticed that 'apapane were constantly on the move, sipping nectar from one lehua blossom and quickly moving on to the next.

The yellow 'amakihi and the red 'apapane are two nectar-loving birds seen along this trail. Their thin, curved beaks reach deep into flowers. Rolling their bristle-tipped tongues into straws, they draw in sweet nectar.

Active birds depend on 'ōhi'a blossoms for a nectar snack every few seconds and 'ōhi'a rely on birds to spread their pollen. In the park, 'ōhi'a flowers mainly during the winter and mid-summer, yet individual trees may be found flowering throughout the year. The 'ōhi'a and the bird's survival are critically linked.

Unlike many other birds, 'apapane do not establish and defend a territory. They must be on the move, always in search of nectar and for the *redness of the next lehua.*



© JACK JEFFREY



**Watch for nectar feeders.**

From your seat, look for a cluster of red lehua blossoms. Keep your eyes on it, and within a few minutes, you'll probably spot an 'apapane sipping nectar from the brilliant flowers.

8

These giant boulders fell in landslides triggered by strong earthquakes in 1983.

Four volcanoes dynamically reshape this island. Frequent tremors proclaim internal adjustment as the island grows and settles. The strongest earthquakes trigger landslides from the steep caldera walls. A 6.6 magnitude earthquake in 1983 rocked the entire island and shattered the overhead cliffs. These huge boulders thundered down and buried the trail.

A larger rockfall simultaneously occurred a few hundred yards farther along the cliff. No one was injured, but a section of the old Crater Rim Drive (right) fractured and crashed down to the caldera's floor.



NPS PHOTO

Hawaiian chants tell us that when Pele is angered, tremors rock the land as she stomps her feet. Large quakes trigger rockfalls in the caldera area every decade. They remind us of the natural forces that reshape our land and the power and presence of Pele.



**Look for 'ohi'a that bear clusters of reddish-brown roots hanging from their branches.** These aerial roots form when a tree is damaged or stressed by an eruption or other event. Along this part of the trail, the stress was caused by rockfalls from above. Look for the offending boulders near 'ohi'a trees with aerial roots along the trail ahead.



NPS / DAVE BOYLE

9

“Lawe li‘ili‘i ka make a ka Hawai‘i,  
lawa nui ka make a ka haole.”  
*Death by Hawaiians takes a few at a time,  
but death by foreigners takes many.*

Hawaiian proverb

This old proverb refers to human diseases that were tragically introduced by early foreigners. Epidemics swept through the islands, killing 3 out of 4 Hawaiians within a few decades.

Native Hawaiian plants and animals are currently undergoing a similar extermination by foreign species. Alien species are those moved by humans to areas outside their native ranges. Once transported, they are removed from herbivores, parasites, and diseases that kept them in balance and they quickly become pests.



NPS / DAVE BOYLE

Faya (also called firetree) is one of the most disruptive alien plants in the park. Native to volcanic islands off the coast of Europe and Africa, it was introduced to Hawai‘i about 100 years ago. Each fall, female trees produce tens of thousands of seeds that are eaten and dispersed by birds.

Faya thrives in nitrogen-poor volcanic soils and spreads rapidly. They grow much faster than native 'ohi'a and forms very dense stands that displace all native plants on the forest's floor. Currently, faya infests 40,000 acres (162 square km) of the park. The trees in this area have been treated and killed, but a look around you reveals how faya has transformed the beauty of this native Hawaiian forest into a dark wasteland.

“... *death by foreigners takes many.*”

To preserve Hawai'i Volcanoes National Park for the enjoyment of present and future generations, do not collect or disturb natural, cultural, or historical features.

Please help protect your park... take only photographs and inspiration, leave only footprints and goodwill.

AHU

Ahu (stacked rocks) mark the trail across the caldera. Please do not disturb them or build new ones.

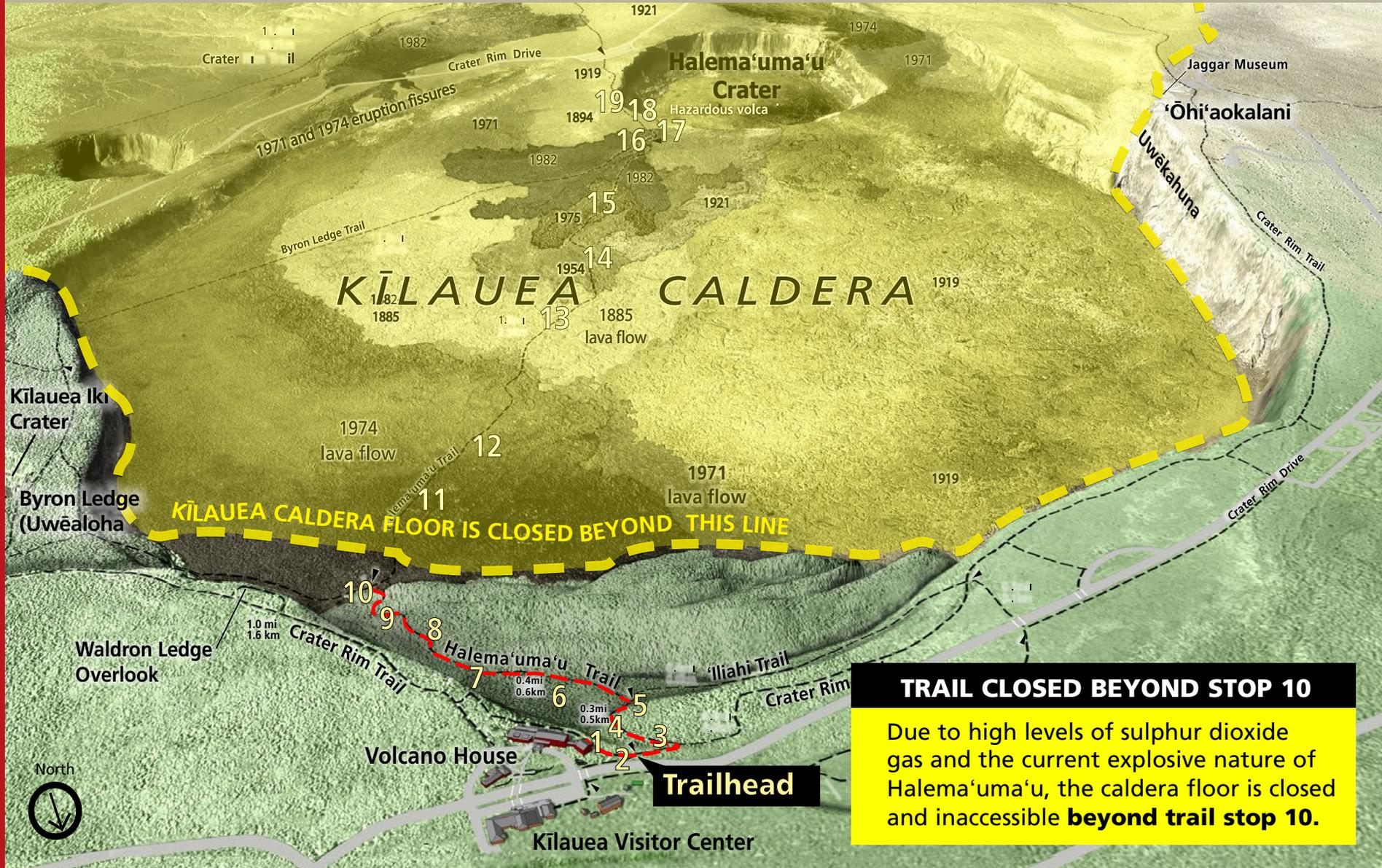


TRAIL STOPS

Ground markers on lava or numbered posts in the forest indicate stops described in this guide.



10



TRAIL CLOSED BEYOND STOP 10

Due to high levels of sulphur dioxide gas and the current explosive nature of Halema'uma'u, the caldera floor is closed and inaccessible beyond trail stop 10.

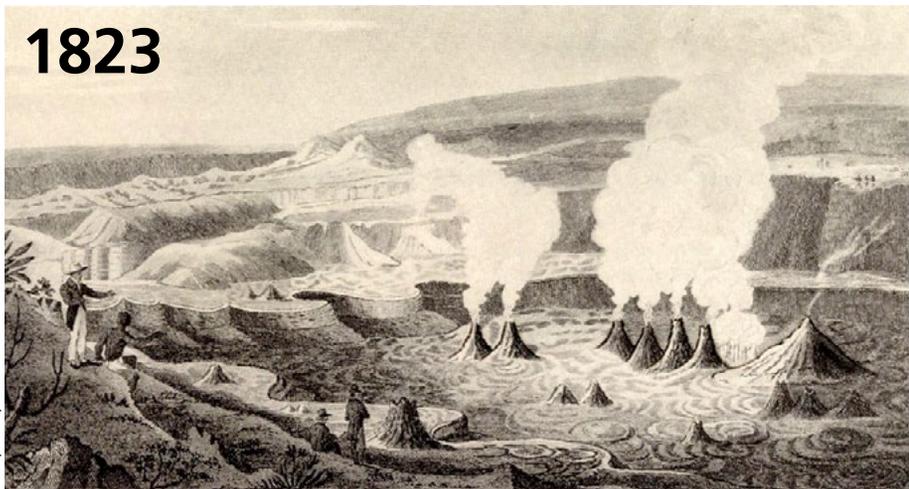
# AREA CLOSED

## 10

“Step lightly, for you are on sacred ground.”

Hawaiian's advice to reverend William Ellis, 1823

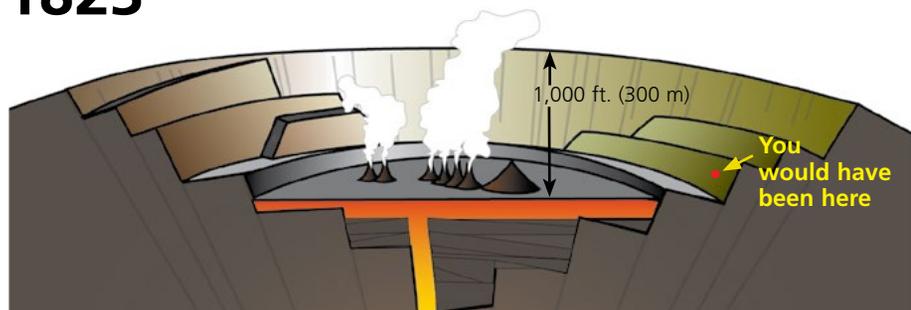
### 1823



ELLIS, 1825, COURTESY OF BISHOP MUSEUM

In 1823, Reverend William Ellis visited Kīlauea caldera on his journey around the island of Hawai‘i. He was the first foreigner to be shown the home of Pele. By the time Ellis arrived, more than 300 years after the summit collapses of the late 1400s, the caldera had begun to refill. He measured the chasm from the highest rim to its depths, it was over 1,000 feet (300 m) deep. His sketch (above) documented a series of terraces that stepped down to a vast inner crater that occupied nearly half the caldera’s floor.

### 1823



# AREA CLOSED

Since Ellis’s visit, an additional 600 feet (180 m) of lava has filled the caldera. The inner terraces that Ellis sketched in 1823 have long been buried beneath layers of new lava flows. Within a few hundred years, the caldera will probably continue to fill and eventually collapse once again. Yet these longer geologic cycles ultimately results in the overall growth of the great volcano.

The breathtaking view ahead culminates at Halema‘uma‘u Crater. It is the site of the current eruption which began in 2008 with an explosion that created a new crater on the floor of Halema‘uma‘u. Ever since, a churning lake of molten lava rises and falls in the new crater. As it erodes the crater’s walls, they collapse with sudden explosions that pose a significant hazard to the area. A suffocating cloud of sulfur dioxide swirls from the vent. The area ahead remains closed due to ongoing impacts of these significant volcanic hazards.

When Reverend Ellis began his approach back in 1823, his principal Hawaiian guide turned back and refused to lead him to the forbidden caldera (the sacred home of Pele). The others showed Ellis the way but warned him to “Step lightly, for you are on sacred ground.”



**Your hike down has crossed over the tops of down-faulted terraces.**

Look across the caldera to see other terraces below Jaggar Museum. How many terraced steps are there from the rim to the caldera floor? (find the answer on next page)

### Today



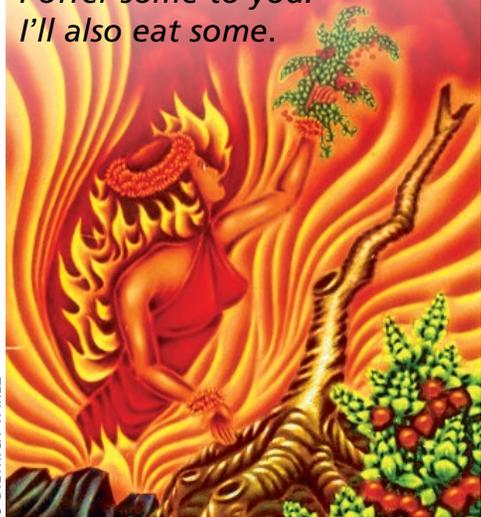
# AREA CLOSED

## 11

Hawaiian believers continue sacred rituals at Uwēkahuna and hold great reverence for this dramatic land.

Ē Pele, eia ka 'ōhelo, 'au  
Ē kaumaha aku wau iā 'oe.  
Ē 'ai ho'i au kekahi.

*Oh Pele, here are your 'ōhelo  
I offer some to you.  
I'll also eat some.*



During Reverend Ellis' travel up to the caldera, his guides could not locate any drinking water. Everyone in the party grew parched, but their Hawaiian guides warned against quenching their thirst by eating Pele's sacred 'ōhelo berries. Ellis ignored their warnings as mere superstition. But the locals both feared and loved Pele and did not eat her berries until within sight of the crater, and only after offering a few berries towards Pele's home at Halema'uma'u and reciting the time-honored chant (above left).

At that time, the heiau (temple) of Oalalauo overlooked Pele's home from the brink of the closest cliff. There, the noted kahuna (priest) Kamaka'aka'akua revealed the wishes of the volcano goddess and assigned sacred duties to her devout believers.

Uwēkahuna, the sacred cliffs below Jaggar Museum, are named for wailing priests. Chants and stories cite five sacred steps (down-faulted terraces) along an old trail that lead from the top at 'Ōhi'aokalani ('Ōhi'a of the heavens) to the caldera floor and then to the home of the goddess, the beautiful woman of the pit.

© DIETRICH VAREZ

# AREA CLOSED

## 12

You are crossing the surface of two great lakes of solidified lava.



In August 1971, Kīlauea erupted from fissures along the southeast section of the caldera (see map). The brief but spectacular eruption generated a mile (1.6 km) long line of fountains up to 250 feet (75 m) high. In only 10 hours, new lava had blanketed nearly one-fifth of the caldera's floor (see map). Here, the flows pooled to create a vast molten lake. Within weeks, it had cooled and completely solidified into a flat plain of lava that covered nearly one square mile (2.6 square km).

Three years later, in July 1974, another eruption occurred in the same area. A new lava lake almost completely buried the older one. Farther along the trail, you will step down from this 1974 lava onto the outer edge of the older 1971 lava lake. The goddess lives up to her name Pelehonuamea — Pele, creator of new land.



**Look for "squeeze-ups".**

As the 1974 lava lake cooled, the thin surface crust contracted and cracked. Molten lava oozed up through the cracks and formed a weld between the two plates. These formations are called squeeze-ups.



# AREA CLOSED

## 13

Pioneers send down roots and homestead these 1885 lava flows.



Over the last 100 years, the surface of this lava has crumbled into small particles. Intense tropical sun and volcanic acid rain have further broken down and released minerals from the lava. Wind-blown sand, ash, dead leaves and insects collect in cracks and surface depressions. These ingredients hold moisture and provide food. Many believe that Pele's sister, Hi'iaka, plants the first seeds on fresh lava and nurtures the new forest.

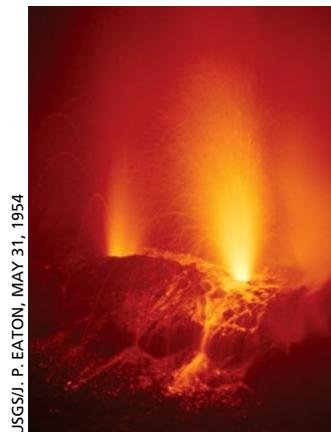
Her first labors produce algae, ferns, 'ōhi'a, lichens, and mosses, usually in that order. Within 10 – 20 years, small shrubs crowd the cracks and crannies as the original colonizers are joined by pūkiawe 'a'ali'i, kūpaoa, and 'ōhelo (photos at left in order from top to bottom right).

Because new lava doesn't hold water very well and is bankrupt of vital nutrients, these pioneering plants struggle to survive and grow very slowly. Some of the small 'ōhi'a trees on this flow may well be over 100 years old.

# AREA CLOSED

## 14

Earth tremors heralded the onset of the 1954 eruption. The life of the volcano was renewed.



USGS/J. P. EATON, MAY 31, 1954

With little warning, a fissure opened on the floor and extended up the inner walls of Halema'uma'u. Molten rock fountained skyward from the freshly opened crevice. Minutes later, a second fissure unzipped on the floor of the caldera near Halema'uma'u. A curtain of lava jetted from the vent. Eight hours later, after covering 140 acres (0.56 square km) with new lava, the eruption was essentially over.

New life appeared on this barren flow within a few months. Here as elsewhere in Hawai'i, animal pioneers precede plants. These include a large endemic spider and a wingless cricket. The nocturnal lava crickets do not sport the equipment necessary to make the cricket sound. Perhaps they lost the ability to call for mates because hungry lava spiders found their noisy cricket ancestors. Only "cricketless" crickets survived to pass along their "cricketless" genes.



The dark lava cricket is found nowhere else in the world except on young flows on the island of Hawai'i. They abandon a lava flow when vegetation covers it—within 20 to 100 years. The eruption of 1954 provided fresh lava habitat for this critically dependent species. Continuous eruptions that produce fresh new habitat is required for the existence of the Hawaiian lava cricket.

# AREA CLOSED

15

Pele's breath feeds and nurtures delicate crystal formations on the surface of this young flow.



USGS/HAWAIIAN VOLCANO OBSERVATORY

In the predawn hours of November 29, 1975, a magnitude 7.2 earthquake, centered on the south flank of Kīlauea, violently rocked the entire state. It was the largest earthquake in over a century,

generating a tsunami that killed two campers at a coastal campsite. The earthquake shook with such force that it triggered a small eruption here on the caldera floor that lasted less than one day.

Since that eruption, white zigzag lines have appeared across the surface of the flow. These are mineral deposits that form along active thermal cracks. The process begins when rain water seeps down, contacts hot rocks, and flashes into steam. The rising hot vapors dissolve the calcium and silicon from the surrounding rocks. At the cool ground surface, the steam leaves behind calcium carbonate and gypsum that form tiny white crystals.



NPS/JAY ROBINSON



**Look closer into one of the sheltered steam crannies to find delicate crystals.**

Where crystals are exposed, rain-water redissolves the minerals and washes them away to leave only a thin, white crust along the cracks.

# AREA CLOSED

16

This great spatter rampart was created overnight in the most recent summit eruption.

After seven years of repose, Pele awakened at noon on April 30, 1982. Following three hours of earthquakes, a new fissure formed at the crater's eastern rim, steam bellowed forth and within minutes . . . lava!



USGS/J. P. LOCKWOOD, APRIL 31, 1982

People came from all corners to witness Pele's awesome power. Traffic backed-up 20 miles (34 km) from the park toward Hilo. Over 30,000 people crowded the overlooks and those who stayed late were treated to the wonders of an all night eruption. It is said that the line of fountains blasting from a fissure is Ke'ōahikamakaua—Pele's brother with his fiery lava spears.

Spatter (sticky globs of airborne lava) cooled as it fell and built this wall, called a spatter rampart, overnight. Take a closer look and you will find spatter oxidized to red-orange where it was exposed to blasting steam. Where molten spatter froze as it dripped from overhangs, it formed nāhuku (stalactites). Please take great care to leave the fragile beauty just as you found it.



NPS/JAY ROBINSON

# AREA CLOSED

## 17

Smelly sulfur dioxide fumes emitted from the crater are called kūkaepele, Pele's excrement.



NPS/DAVE BOYLE

Magma gathers in a reservoir less than 1 mile (1.5 km) beneath your feet, trapped, for now, beneath the weight of the overlying mountain. Sulfurous gases escape from the boiling stew and rise to the surface. Along with the white minerals that precipitate at steam cracks, yellow sulfur is deposited at solfataras (sulfur vents.) The ground around the solfatara might be no more than a thin crust that covers deep pockets of scalding, toxic fumes. For your safety, do not approach solfataras.

## 18

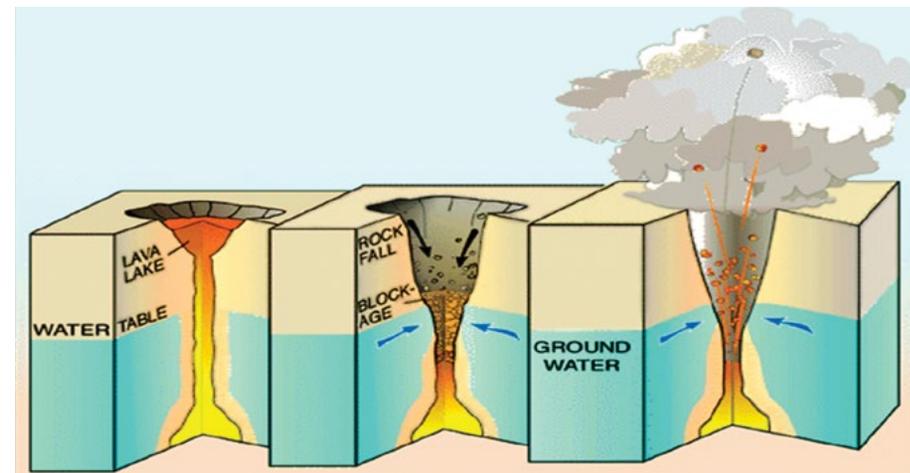
Kapohāikahiola, Pele's brother—a force of volcanic explosions—manifests himself about every 100 years and violently reshapes the land.



Hundreds of massive steam explosions were blasted from Halema'uma'u for 18 days in May 1924. Cauliflower clouds of ash roiled more than 2 miles (3 km) into the air. Twenty miles (30 km) down-wind, the ash clouds turned day into night in the town of Pāhala. Unfortunately, one visitor died from his injuries after he ventured too close and was burned by a rain of scalding mud and falling rocks.

# AREA CLOSED

These explosions occurred when the active lava lake in the crater drained below the level of the water table 1,600 feet (500 m) below the surface. The walls of the drained crater collapsed and blocked the throat (center below). Ground water seeped into the hot conduit and flashed into steam, but was blocked from escaping by the rockfall.



USGS/Hawaiian Volcano Observatory

When enough pressure built up, steam blasted away the rocks with great force. The collapsing walls continued to block the conduit and the violent explosions repeated every few hours. Mud and hot rocks were hurled out of the crater in all directions. Eight-ton (7,000 kg) boulders (below) were ejected as far as 2/3 of a mile (1 km) away. By the time the explosions had quieted, the ground here was buried in ash and strewn with rocks and boulders. Halema'uma'u had collapsed to a depth of 1,075 feet (328 m), and the crater had become more than twice as wide.

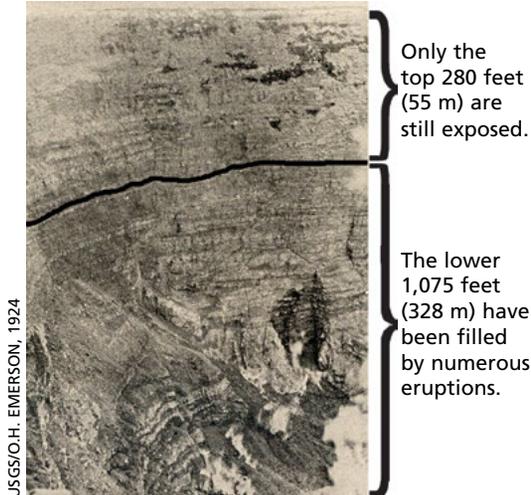


# AREA CLOSED

19

Many people of Hawai'i know this crater as sacred home of Pele, Kawahineokalua, the woman of the pit.

This photograph, taken just after the 1924 eruption, shows a cavernous pit excavated by the explosions. Since then, eruptions within the crater have been sporadic, but in the following 75 years, lava has refilled nearly 3/4 of the pit.



USGS/O.H. EMERSON, 1924

The crater floor reached its highest level during the 1967–1968 eruption (photo below). Following an eruption in 1971, the crater's floor collapsed and dropped 150 feet (45 m). The slump exposed a light mineral crust on the lower crater

walls that was deposited by the old lava lake in 1968. Look for the high lava mark separating the dark upper cliffs from the lighter walls below.



USGS/DICK FISKE

Today, the crater floor is largely covered by lava from 1974. The last summit eruption here was in 1982. Activity changed in 1983, when Pele traveled 12 miles (19.5 km) downslope and began the longest flank eruption in modern times. Many wait expectantly for Pele's next manifestation here at her home in Halema'uma'u.

# AREA CLOSED

## Conclusion

Pele may appear as a woman all afire or as pure flame. Her sacred name is Ka'ula o Keahi, the redness of the fire.

Pele is known by as many names as there are adjectives to describe her eruptions. Likewise, many names are used for her crater home. Chants of long ago often pronounced Halemaumau without the 'okina ('). This translates to house of eternal fire. Add the glottal stops, and Halema'uma'u translates to house of the 'ama'u fern; a name that harkens back to a time following a battle at the crater between Pele and Kamapua'a. Both names have historic ties; both are correct.



**Follow the soaring flight patterns of koa'e kea, white-tailed tropicbirds.** These solitary "crater birds" nest in niches in the crater walls. They feed about 10 miles (16 k) offshore, eating squid, shrimp, and small fish.



NPS/DAVE BOYLE



USGS/HAWAIIAN VOLCANO OBSERVATORY

Traditional Hawaiian links to the land are strong and enduring. In extending their aloha (love and affection), Hawaiians hope that we might find common ground and understand why so many people consider Kīlauea a source of life and inspiration. Enjoy the quietness and elemental beauty of this scared land, and as you contemplate this ever-changing landscape, seek your own personal connections to Halema'uma'u and Kīlauea.

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## For more information

To learn more about Hawai'i Volcanoes National Park, visit our web site: [www.nps.gov/havo](http://www.nps.gov/havo).

To read more about Kīlauea Volcano and other historical eruptions, go to the USGS Hawaiian Volcano Observatory web site: [hvo.wr.usgs.gov](http://hvo.wr.usgs.gov).

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