



Friends of Haleakalā National Park

SPRING 2012

P.O. Box 322 ☼ Makawao, HI ☼ 96768 ☼ www.fhnp.org

LAVA FLOWS HOLD MOUNTAIN'S HISTORY, MYSTERIES

By Jill Engledow

Most folks who know and love Haleakalā understand that it is still alive and could erupt again. But this mountain is big and complicated, and geologists have a lot more to learn, volcanologist Dr. John Sinton said in talks that gave Friends of Haleakalā National Park supporters a fascinating glimpse of the ongoing puzzle of the East Maui volcano.

Dr. Sinton, a professor at the University of Hawai'i-Mānoa Department of Geology and Geophysics, spoke to a Friends gathering at Maui College March 16, then led a field trip the following day. The field trip progressed from Kula to Nu'u and included stops at several sites in Kanaio and Kahikinui where Sinton explained how scientists' studies of specific geological features are helping to solve the



Dr. John Sinton points out volcanic features on a field trip to the "back side" of Haleakalā with Friends of Haleakalā National Park.

Matt Wordeman photo

mountain's mysteries.

Sinton said scientists have recently come to understand that Haleakalā is one of the longest-lived postshield volcanoes in the Hawaiian Islands. Most Hawaiian volcanoes go through

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NAGATA PICTURE COLLECTION RECORDS PARK'S STORIES



Linda Nagata photo

You would think that, after 31 years working at Haleakalā National Park, Ron Nagata would be ready to relax. And while the former chief of resources management is taking time to visit with family and friends and make "bucket list" trips with his wife, Linda, he is still very much involved with Haleakalā.

Nagata began his work on the mountain as a volunteer leading five others from the Hawai'i chapter of the Sierra Club on O'ahu on the first-ever fence-building service trip, in August and September of 1976. After a couple of years leading these volunteer teams, he was hired in 1978 as a seasonal back-country ranger, patrolling, checking for permits, and generally keeping an eye on things in the wilderness area known as the crater. Until his retirement in 2009, in addition to many other tasks, Nagata was a key member of the team that eventually excluded feral goats and pigs from park lands by installing fences

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LAVA FLOWS SHOW SCIENTISTS HOW MOUNTAIN GREW

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four main eruptive stages, he said. First is an early submarine (seamount) stage, of which Lō‘ihi is the only known presently active example. Then the volcano builds its shield-shaped bulk as it emerges above sea level. Later, a postshield “capping” stage adds a bit more to the total volume of the mountain. And finally, after a period of inactivity and erosion that may last from hundreds of thousands to millions of years, the volcano erupts again in a rejuvenation stage.

Until extensive lava dating early in this century, it was thought that Haleakalā was in the rejuvenation stage. But the recent evidence shows that Haleakalā seems never to have entered that period of inactivity leading to the rejuvenation stage. Instead, the mountain has erupted off and on in a protracted period of postshield activity lasting more than 900,000 years—more than three times longer than any other Hawaiian postshield volcano.

An exact record of eruptions isn't available,



Wai‘ōpai Gulch is an old, eroded flow (right) draped with relatively new lava (on the left).



A narrow strip of new lava flowed down the eroded streambed called Kepuni Gulch.

because evidence of some eruptions may be covered by lava from newer ones, but it appears that the mountain undergoes periods of relatively frequent activity separated by periods of infrequent eruption. Apparently we are now in one of those quiescent periods between eruptive episodes.

Postshield eruptions on East Maui have occurred from three principal rift zones. The north rift zone, marked by cinder-cone hills in the Makawao and Ha‘ikū areas, shut down more than 120,000 years ago. The other two, the southwest and the east rifts, meet in the crater. Both have erupted in the last 1,500 years, with at least a dozen eruptions in the past thousand years—in Hāna, within the crater and along the southwest rift zone.

The crater eruptions are an example of what Sinton said is a common pattern on Haleakalā: erosion follows eruption, only to be filled by the products of further eruptions. The floor of what

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we call the “crater” is made up of lava laid down by relatively recent eruptions within an enormous erosional valley whose walls were formed some 120,000 to 150,000 years ago. Before the valleys of Ke‘anae and Kaupō cut into the mountain, its summit probably looked something like Mauna Kea, Sinton said. Once erosion created the valley walls, volcanic activity was trapped inside except for the paths formed by the valleys themselves. Lava from crater eruptions in the last thousand years filled the floor of the crater and flowed down Kaupō and Ke‘anae valleys.

Dr. Sinton led the field trip to some sites along the southwest rift zone where this eruption-erosion-eruption pattern is obvious. One is Kepuni Gulch. When a small vent located along the upper part of the southwest rift zone erupted about 3,200 years ago, its lava flowed into a stream channel cut by erosion through earlier flows, leaving a path all the way to the sea, about 8 feet wide, of smooth pāhoehoe lava and occasional cascading lava falls.

Another site with startlingly clear evidence of multiple flows over time is at Wai‘ōpai Gulch. Here, a layer of lava poured over an earlier flow which had eroded into a steep-sided valley. The layers of the earlier flow are still exposed in places under the mantle of newer lava.

WHEN DID HALEAKALĀ LAST ERUPT?

Until recently, scientists believed that Haleakalā last erupted about 1790, from a spatter cone called Kalua o Lapa, forming Cape Kīna‘u at Keone‘ōi‘o, about 2.5 miles south of Mākena. The date was based on differences between maps drawn in 1786 by French explorer Jean-François de Galaup, Comte de La Pérouse, and those drawn by the British captain George Vancouver in 1793. Vancouver’s maps show a peninsula of fresh lava where La Pérouse showed a bay.

But recent findings indicate that the eruption occurred much earlier. Perhaps La Pérouse was a less-than-accurate cartographer, and his failure to clearly indicate the presence of Cape Kīna‘u was simply an error in map making.

Scientists discovered that the 1790 date is incorrect while they were trying to calibrate their knowledge of Earth’s magnetic pole in the 1990s. As the magnetic North Pole changes through time, a compass needle will point in a different direction. Minerals within lava flows record the magnetic orientation existing at the time that they formed. When scientists compared the magnetic record of the flows at Keone‘ōi‘o with Hawai‘i Island flows from 1802, they discovered that the pole positions were quite different, indicating that the flows could

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La Pérouse Bay

FRIENDS OF HALEAKALĀ NATIONAL PARK SERVICE TRIPS

Date Location (Leader)

Apr 21-23 Hōlua – heterotheca (Matt)
May 26-28 Palikū Service/Learning (Elizabeth)
June 8-10 Kapalaoa – heterotheca (Joani)
July 2-4 Palikū Service/Learning (Matt)
Aug 4-7 Waikau Tent Camp (Matt)
Sep 1-3 Palikū Service/Learning (Elizabeth)
Oct 5-7 Kapalaoa Seed collection (Joani)
Nov 10-12 Hōlua – heterotheca (Matt)
Dec 1-3 Kapalaoa – heterotheca (Matt)
Dec 8 Pu‘u Niau-niau Christmas Tree (Matt)

This schedule is subject to change. Please contact a trip leader to confirm dates, cabins and mission. The last date of each trip is the return date. Par-

ticipants will backpack into the crater to a cabin or campsite and back. Depending upon the trip, the group will perform one of a number of tasks ranging from cabin maintenance to native planting to invasive species removal. An Interpretive Park Ranger will be along on the Service/Learning trips.

Before signing up for a service trip, please go to the FHNP website at www.fhnp.org, create an account, then log into the account to learn more about the trips and certify your readiness for a service trip. Call Matt (808)876-1673, Elizabeth (808)264-4757 or Joani (808)669-8385 or write matt@fhnp.org, bethspeith@yahoo.com or napili-joani@aol.com for more information and to make reservations to join a trip.

FIND YOUR FAVORITE JOB AS A VOLUNTEER FOR HALEAKALĀ



Volunteer Michelle trims back vegetation to clear the Kaupō trail during a service trip to Palikū cabin. Greg Clarke Photography

Do you want to help preserve the beauties of Haleakalā? Are you a physically fit hiker, or someone who loves the mountain but can no longer trek long distances at high altitude?

Either way, we have a job for you. One of the big needs is a Friends of Haleakalā National Park volunteer trip leader, a physically fit individual with good organizational skills and a willingness to lead volunteers in the wilderness to protect native habitats of endangered species and help maintain back-country cabins. The commitment is for one or two weekends per year, and the

individual would need to attend three days of training and CPR certification.

Potential volunteers can contact Melissa Chimera (572-4487 or melissa_chimera@nps.gov) or apply directly on-line here: <http://www.volunteer.gov/gov/results.cfm?ID=5187>.

The park has part-time interpretation needs (working at the front desk, giving visitors information and issuing permits) for local people who can commit to one day per week. They are looking for educators, retired or not. Volunteers need to have reliable transportation, or else an employee van pool may be available to them from Makawao. They may contact Chimera or apply directly on-line. The link: <http://www.volunteer.gov/gov/results.cfm?ID=5176>

Friends of Haleakalā National Park also is looking for graphics artists who can help design posters, T-shirts and promotional materials. Contact Matt Wordeman at matt@fhnp.org.

SUPPORT THE FRIENDS OF HALEAKALĀ NATIONAL PARK

Who we are ...

We are a non-profit organization dedicated to assisting Haleakalā National Park achieve the purposes and goals for which it was established: To preserve Haleakalā's unique eco-systems, scenic character and associated native Hawaiian cultural and spiritual resources so as to leave them unimpaired for the enjoyment of future generations.

What we do ...

- ◆ Facilitate volunteerism to accomplish projects recommended by park staff.
- ◆ Monitor actions and activities that could impact the Haleakalā.
- ◆ Urge responsible use of the Park by the public.
- ◆ Provide financial assistance for the benefit of the Park by soliciting funds from the general public. Provide financial assistance for the benefit of the Park by soliciting funds from the general public.
- ◆ Promote programs such as Adopt-a-Nēnē to generate funds that will enhance the protection and preservation of the endangered natural resources of the Park.
- ◆ Implement programs and activities that increase public awareness and appreciation of the Park and its highly diverse geological and biological resources.

What you can do ...

- ◆ **Join** the Friends of Haleakalā National Park
- ◆ **Adopt-a-Nēnē** – an unusual gift idea.
- ◆ **Volunteer** in the Park
- ◆ **Sign up** for Service Projects.
- ◆ **Serve** on the Board of Directors or Advisory Board of the Friends

The Adopt-a-Nēnē Program ...

was developed as a fun and educational way for you to become a part of the projects that are being conducted in Haleakalā National Park. The nēnē is an endemic bird on the Federal List of Endangered Species. By adopting a nēnē, you will be helping us protect not only the nēnē, but all endangered species and their important habitat in the Park.

REGULAR Supporters receive “adoption papers” that include information about your nēnē, an adoption certificate and a nēnē postcard.

MĀLAMA Supporters receive a postcard pack and all gifts given to Regular supporters.

ALI I Supporters receive an exclusive 5”x7” matted nēnē photo and all gifts given to Regular supporters. They will have their names displayed at the Park.

ALI I NUI Supporter receive an exclusive 8”x10” matted nēnē photo, a special certificate for display and all gifts given to Regular supporters. They will also have their names displayed in the Park.

Yes! I want to **become a Friend of Haleakalā N.P.** Enclosed is my tax deductible contribution:

\$15 \$25 \$50 \$100 \$500 \$ Other _____

Yes! I want to **Adopt A Nēnē.** Enclosed is my tax deductible contribution:

\$20 Student/Senior \$30 Regular \$50 Mālama \$100 Ali‘i \$200+ Ali‘I Nui

Send me no gifts please, I want my entire contribution to protect endangered species

Name(s) _____

Address _____

Phone _____ e-mail _____

Make checks payable (in U.S. dollars) to:

Friends of Haleakalā National Park, Inc. Send to P.O. Box 322, Makawao, HI 96768

You can also donate on-line using your credit card at www.fhnp.org

ALI'I DONORS 2011

Mahalo to these friends who donated at least \$100 in 2011. Your support of both the Adopt-a-Nēnē program and the Friends of Haleakalā National Park general fund is greatly appreciated.



Carlos Arquelles
Victoria, TX

Brian Jenkins
Kula, HI

Puja Rana
New York, NY

Lisa Barker
Reston, VA

Steven Kram & Peggy Pitchford
Denver, CO

Kiope & Lisa Raymond
Kula, HI

James M. Beck
Philadelphia, PA

James & Eleanor Lahti
San Jose, CA

Don Reeser
Makawao, HI

Pascale Blaise
Verdun, Canada

Benort Lemay
Verdun, Canada

James Reilly
Helsinki, Finland

Lisa Bork
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Norwell, MN

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Houston, TX

Martha Martin
Paia, HI

Jill Scott
Sheridan, WY

Lesley & Paul Czechowicz
Kihei, HI

George McEldowney
Honolulu, HI

Carla Trent
Thousand Oaks, CA

Francis Devlin
Houston, TX

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Rockville, MD

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Duncan Peterson

Wendy Woods
Boston, MA

Heather & Todd Hahn
Sugarland, TX

John H. R. Plews
Honolulu, HI

Marian Zajac
Haiku, HI

Lynn Hogben
Philadelphia, PA

Pony Express
Kula, HI

George Privon
Aiea, HI

CHARLES KAULUWEHI MAXWELL, SR.

A longtime friend of Haleakalā, Charles Kauluwehi Maxwell Sr., died March 15, 2012, after a long illness. Mr. Maxwell, often called Uncle Charlie, grew up in the Upcountry area. A former policeman, he was active in issues of Hawaiian culture ranging from beach access to the development of astronomical facilities atop Haleakalā. Uncle Charlie was instrumental in the founding of the Friends of Haleakalā National Park, and described Native Hawaiian use of the summit for the Fall 2002 issue of this newsletter. Our best wishes are with Uncle Charlie's family as they cope with their loss.

NATIONAL PARK WEEK EVENTS MARK ANNUAL CELEBRATION

The National Park Service and the National Park Foundation, the official charity of America's national parks, invite people everywhere to enjoy, explore, learn, share, and give back to America's nearly 400 national parks during National Park Week 2012.

Celebrating this year's theme, "Picture Yourself in a National Park," National Park Week will run from Saturday, April 21, through Sunday, April 29. Throughout the country, visitors can enjoy the beauty and wonder of 84 million acres of the world's most spectacular scenery, historic places and cultural treasures for free.

National parks will mark the annual celebration with special events and activities, including Volunteer Day on April 21, Earth Day on April 22, and Junior Ranger Day on April 28.

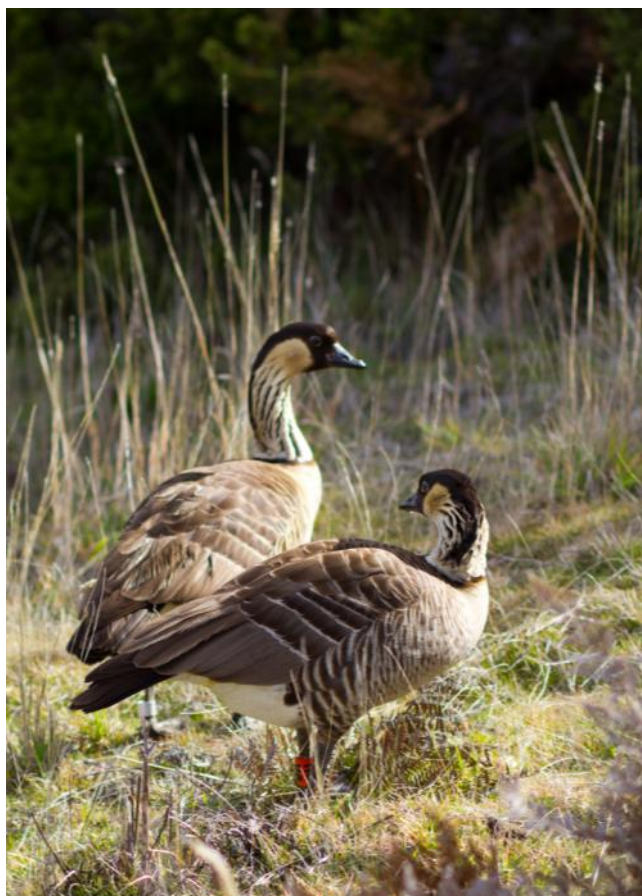
On Maui April 21, Volunteer Day, roll up your sleeves and pitch in to pull invasive weeds at Haleakalā through a day trip with the Pacific Whale Foundation, or join the Friends of Haleakalā National Park for a service trip into the crater April 21-23 at Hōlua cabin.

On April 22, Earth Day, join us for a ranger-led hike into The Nature Conservancy's Waikamoi Preserve (call 572-4400 for reservations).

On April 28, National Junior Ranger Day, parks will invite young visitors to "explore, learn, protect" and be sworn in as Junior Rangers.

Entry into Haleakalā National Park will be free all week. For a detailed list of events and activities please visit the park at: www.nps.gov/hale, on Facebook, or call 808-572-4400.

FHNP hike leaders Joani Morris and Elizabeth Speith will describe various recreational resources of the park from 6:30 to 8 p.m. April 26 at Maui College classroom Ka Lama 103. "A walk in the park: A how-to guide to camping, hiking and service in Haleakalā National Park" will cover topics including where to hike and camp, what equipment or preparation is required, what to wear, permits required and how to obtain them. The talk is open to the public.



Greg Clarke Photography



NAGATA PHOTO COLLECTION RECORDS PARK'S STORIES

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across rugged and remote landscapes.

His second volunteer career includes a job he did at the very beginning—coordinating Sierra Club service trips. But much of Nagata's considerable energy is going into a project no one else could do: digitizing and organizing thousands of photos he took over four decades.

Nagata shot his first Haleakalā photographs during trips he made to the mountain while he was a student at the University of Hawai'i. Over the years, he kept taking photos, and by the time he retired he had something like 30,000 Haleakalā-related shots on film and slides, not counting the digital photos he took beginning in 2004. Nagata has since culled the collection and is in the process of digitizing the pictures that were shot on film. Many of them are slides, which he has copied onto archival gold CDs and DVDs, disks that are said to be good for 100 years. The slides and negatives are organized into binders, along with the disks of the digital copies. Everything is stored in a gun safe, where the material is protected from fire, insects and moisture.

Historians of the future will be thankful that Ron Nagata is an incredibly organized person. Over the years, he kept datebooks recording each day's activities. Now, Nagata is able to match pictures to the datebook information and write detailed descriptions for each photo, and he has worked out a system for keeping them in chronological order. So, for example, he can tell you that one photo shows former superintendent Hugo Huntzinger inspecting a proposed Kaupō pali fence line on October 23, 1981, and that another shows Terry Quisenberry on November 2, 1984, measuring the fence erected there by contract workers.

Once the collection is complete, Nagata plans to turn it over to cultural resources program manager Elizabeth Gordon for inclusion in the park's historical archives. Then he can concentrate on another project he began on a recent trip to Palikū: revisiting the sites of old pictures to produce then-and-now pairs showing how the landscape has changed in the years since fencing made it possible for native plants to flourish once again on the mountaintop.

Ron Nagata photos show Hugo Huntzinger inspecting Kaupō pali (above) and Terry Quisenberry measuring the new fence (right).



PARK STORES' OPERATOR HAS NEW NAME AND LOGO

You'll still find books, postcards and assorted park-related gear in the three Haleakalā National Park shops, but the nonprofit cooperating organization that runs them has a new name and logo. The former Hawai'i Natural History Association, now known as the Hawai'i Pacific Parks Association, has contributed more than \$12 million in direct aid and other support to national parks since its creation in 1933.

The association changed its name in December 2011 to better reflect its role and geographic reach. Working in partnership with the National Park Service, it serves five national parks in Hawai'i and the national park of American Samoa. The association's core purpose is to inspire visitors and foster meaningful connections to the parks.

Proceeds from the bookstores support interpretation, educational programs, research projects, publications and cultural activities. The association publishes and distributes educational books, guides and other materials, funds visitor center exhibits and park libraries, provides information assistance, sponsors free cultural demonstrations and festivals, and helps support conservation efforts such as the endangered nēnē recovery and hawksbill sea turtle projects.



Join us on Facebook for updates on service trips, talks and events, and to stay in touch with other "Friends." You'll find us at: [http://www.facebook.com/](http://www.facebook.com/groups/113998833864/)

[groups/113998833864/](http://www.facebook.com/groups/113998833864/)

And don't forget to check out our website, www.fhnp.org, for more in-depth information about our organization and the many ways we work to support Haleakalā National Park. Sign up for an FHNP account to receive timely e-mail messages from the Friends of Haleakalā.

If you prefer to help save the cost of printing and postage by receiving this newsletter electronically, please e-mail matt@fhnp.org and let us know.

WHEN DID THE MOUNTAIN LAST ERUPT?

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not have taken place only a dozen years apart. After double-checking this surprising finding with radiocarbon dating of charcoal from beneath the flow and at the vent, they now believe the La Pérouse eruption occurred sometime between 1450 and the 1600s.

Other evidence for the time of that last Maui eruption comes from oral histories taken by former missionary Edward Bailey in the 1800s, in which natives of the area referred to stories told by their *kūpuna*. The word *kūpuna* means "grandparents," but it can also mean ancestors in general. Scientists now speculate that these folks were talking about people of an earlier generation, rather than their grandparents. And while the great dark lava flows down the southern flank of Haleakalā may be slightly older than we used to think, the centuries since the last Maui eruption are still just a moment in geological time.

What is the likelihood that the next eruption will be in this same area, not far from a populated coastline? No one knows, according to geologist Dr. John Sinton; a future eruption could take place anywhere along the east or southwest rift zone, from Honua'ula to Hāna, and even within Haleakalā Crater. One consolation for those living in the Honua'ula-to-Kīhei region is that the island seems to tilt a bit to the south, perhaps weighted down by the Big Island of Hawaii. Thus, most of the eruptions from the southwest rift have flowed to the relatively uninhabited south, rather than north toward Mākena, Wailea and Kīhei.

This article was excerpted from Jill Engledow's forthcoming book, Stories of Haleakalā: A History of the Maui Mountain, to be published in Fall 2012.



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Kalua o Lapa, the last eruption of Haleakalā

