

# A natural wonder rediscovered

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Painting of the Pink Terraces prior to 1886. Credit: Alexander Turnbull Library, Wellington, New Zealand

(PhysOrg.com) -- Scientists using underwater sensors to explore Lake Rotomahana in New Zealand have uncovered remnants of the Pink Terraces,” once considered the eighth natural wonder of the world.

Lamont-Doherty scientist Vicki Ferrini was working with colleagues from the Woods Hole Oceanographic Institution and GNS Science of New Zealand at the site, near Rotorua, to map the [lake](#) floor and investigate the geothermal system underlying it.

“It’s a very active [geothermal] area – there are steaming cliffs, and hot water percolating along the edge of the lake,” Ferrini said. She noted that Rotomahana means “warm lake” in Maori.

In the 1880s, tourists sailed from afar to see the Pink and White

Terraces, dramatic shelves of silica deposited by geothermally heated water shooting out from two geysers and cascading down to the lake. The eruption of Mount Tarawera in June 1886 engulfed the terraces and destroyed nearby villages, killing more than a hundred people. The eruption ripped open a huge crater that eventually filled with water, forming a new, much larger Lake Rotohamana.

The terraces were thought to have been lost until the expedition discovered remnants of the Pink Terraces earlier this month. The researchers found no signs of the White Terraces, once located on a different bank of the lake not far away.

The researchers used a pair of REMUS 100 Autonomous Underwater Vehicles (AUVs) equipped with sonar and other instruments to collect geophysical data and measure water properties. As the torpedo-shaped vehicles criss-crossed the lake at depths up to 90 meters, they fed essential data to computers on the beach via an acoustic modem mounted in a buoy floating in the middle of the lake.

Ferrini's role was to assess the sonar data coming off the AUVs each night to guide the next day's activities. She will now use the AUV data to create three-dimensional maps of the lake. She said her curiosity was raised by patterns of hard material she saw in some of the side-scan sonar images coming from the western shoreline, near where the Pink Terraces were believed to have existed.

They sent in underwater cameras, which brought back images of structures coated in brownish sediment that looked like the terraces. The discovery turned out to be a huge matter for the locals, particularly the Maori, some of whose ancestors perished in the eruption of Mount Tarawera.

Project leader Cornel de Ronde, of GNS Science, a research institute

owned by the [New Zealand](#) government, said the team was elated at discovering what was once described as the eighth wonder of the natural world.

“The first sonar image gave a hint of a terraced structure, so we scanned the area twice more and we are now 95 percent certain we are seeing the bottom two tiers of the Pink Terraces.”

Dr. de Ronde said the rest of the Pink Terraces were either destroyed during the eruption, or are still concealed under thick sediment that the side-scan sonar signal is unable to penetrate.

The 10-day project was a collaboration involving GNS Science, Woods Hole Oceanographic Institution, Lamont-Doherty, the U.S. National Oceanic and Atmospheric Administration and the University of Waikato. Researchers hope to return to look deeper into the sediments, examine the structures under the lake bed and perhaps find more evidence of the missing terraces.

Provided by Columbia University

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