Four species of limu receive Hawaiian names

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Croisettea kalaukapuae was discovered in Papahānaumokuākea Marine National Monument and is named after Laura Kalaukapu Thompson. Credit: University of Hawaii at Manoa

In the year of the limu (edible water plant), four new species of Hawaiian red algae discovered in different areas across the Hawaiian Islands have been named and scientifically described by a team of international scientists, led by experts from the University of Hawai‘i at Mānoa. One of the species has been named for respected community

and conservation leader Laura Kalaukapu Thompson, who died in August 2020 at the age of 95. The scientific descriptions of the new algae species were published in *Phycologia* in August 2022.

"When names aren't connected to culture, they just feel empty. With their Hawaiian names, I am hoping that these species descriptions not only make a dent in the enormous mountain of undescribed species that currently constitute the Hawaiian flora, but also for these discoveries to be a huge source of local pride that brings together the community in the protection of the reefs of which these limu are an integral part," said the paper's lead author, Feresa Corazon P. Cabrera, a Ph.D. candidate studying under Professor Alison Sherwood in the UH Mānoa School of Life Sciences.

Named after Thompson, Croisettea kalaukapuae was discovered in Papahānaumokuākea Marine National Monument in the Northwestern Hawaiian Islands. Kalaukapu, meaning "the sacred leaf," was Thompson's Hawaiian middle name bestowed upon her by her grandmother.

Thompson was a founding member of the Reserve Advisory Council for the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, established in 2000 by President Bill Clinton. Her leadership on the council contributed to the high levels of protection established for Papahānaumokuākea when the reserve was designated as a marine national monument by President George W. Bush in 2006. Thompson was also a strong supporter of using Papahānaumokuākea as a place for the perpetuation of Native Hawaiian cultural practices. Beyond her work on Papahānaumokuākea, Thompson was an advocate for protecting all of the natural and cultural resources of Hawai‘i.

Thompson, who was affectionately known as "Aunty Laura," was the mother of master navigator Nainoa Thompson, Lita Blankenfeld and

Myron Thompson Jr. She was married to Myron "Pinky" Thompson, renowned social worker, former Bishop Estate trustee and former president of the Polynesian Voyaging Society.

The new alga at Papahānaumokuākea was discovered by researchers using technical closed-circuit rebreathers (advanced technology to recycle breathing gas in a closed-loop system) to dive to extreme depths in excess of 300 feet. These deep coral reefs are virtually unexplored and feature a wealth of undiscovered biodiversity.

Describing new limu species

According to Cabrera, the red limu blades on all four species looked very similar, due to the same evolutionary pressures in the cold twilight depths. Therefore, researchers relied on morphology (a branch of biology that deals with the form and structure of animals and plants) and molecular data to tell them apart.

Cabrera, Sherwood, Professor Celia Smith, UH Mānoa alumnus Randy Kosaki from the National Oceanic and Atmospheric Administration, and other international researchers worked with the Papahānaumokuākea Native Hawaiian Cultural Working Group to give the limu species their formal ʻōlelo Hawaiʻi names:

- Croisettea kalaukapuae
- Croisettea haukoaweo
- Croisettea ohelouliuli
- Croisettea pakualapa

Croisettea haukoaweo was named in honor of Skippy Hau, a prominent biologist on Maui with the State Department of Land and Natural Resources. This species was discovered at a depth of more than 300 feet off Maui. Hau is well-known for his lifelong dedication to saving

Hawai‘i's unique endemic stream fauna and his love for the ocean and his Maui community. The other two species, Croisettea ohelouliuli and Croisettea pakualapa, were discovered in the ‘Au‘au Channel between Lāna‘i and Maui.

"The charm of first discoveries is always exhilarating," Cabrera said. "Putting our heads down as a team to finish their descriptions can be painstakingly long. As an early career research scientist, getting the publication out feels like shoelaces crossing to tie a perfect knot—before we move on to the next one."

More information: Feresa P. Cabrera et al, Cryptic diversity in the genus Croisettea (Kallymeniaceae, Rhodophyta) from Hawaiian mesophotic reefs, *Phycologia* (2022). DOI: 10.1080/00318884.2022.2096823

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