



BISHOP MUSEUM

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MEDIA CONTACTS:

Stryker Weiner & Yokota Public Relations, Inc.
Lance Aquino
Ph.: (808) 398-0657
lance@strykerweiner.com

Bishop Museum Scientists Describe the Last Known Species of *Endodonta* Land Snail

*A study of the endemic *Endodonta christenseni* will aid in efforts to conserve the species*

Honolulu, Hawai‘i – Bishop Museum scientists and collaborators with Hawai‘i’s Department of Land and Natural Resources’ Snail Extinction Prevention Program and the University of Florida Natural History Museum have described what is considered to be the last living species of a group of native Hawaiian land snails that were previously thought extinct. Their research shows that the new species, *Endodonta christenseni*, may be the sole surviving species of *Endodonta* – a land snail genus that is endemic to the Hawaiian Islands. Although the newly described species was discovered in 1923 by museum researchers—including C.M. Cooke Jr., the first malacologist at the museum—it remained unnamed for nearly a century. The [article](#) describing the species was published in the journal [Bishop Museum Occasional Papers](#) on Oct. 15, 2020, and is a substantial contribution to the conservation efforts of native Hawaiian land snails. In addition to providing a name that can be used to advocate for it listing under the Endangered Species Act, it also raises awareness about how the process of describing species is critical to all of biology, but especially to conducting much-needed research to conserve biodiversity in the face of ongoing threats.

The genus *Endodonta* was once represented by 11 species endemic to the Hawaiian Islands. Unfortunately, their ground dwelling habits made this particular group of land snails extremely vulnerable to introduced predators such as ants, rats, and carnivorous snails, and now all the *Endodonta* except *E. christenseni* are extinct. Although some fossil specimens have been used to describe extinct species, *Endodonta christenseni*, which lives only on the island of Nihoa, is the first living species of *Endodonta* described since 1905.

In the published article the authors note that “In describing this last *Endodonta* species, our hope is to inspire increased awareness and appreciation that facilitates and motivates conservation for this species and all other undiscovered and unnamed species threatened with extinction. Unless protection of this species is implemented, it may be extinct within the next decade and we will lose the last of a lineage that existed for millions of years, along with the stories it could tell

about biodiversity in the Hawaiian Islands.” Ken Hayes, the director of the Pacific Center for Molecular Biodiversity and lead author on the study explained, “This sort of work forms the foundation for all conservation efforts, and the gap in knowledge about biodiversity, which is especially severe for understudied and highly threatened groups like snails and insects, prevents effective research needed to inform conservation actions.”

Since 1600, Pacific land snails have accounted for more recorded extinctions than any other group of animals. The Hawaiian Islands were once home to some 750 species, with more than half of these now thought extinct as a result of habitat degradation, climate change, and impacts from invasive species. Since 2004, the coauthors of this study and collaborators have conducted extensive surveys documenting native and non-native snails in Hawai‘i. Over that time, more than 1,000 sites have been surveyed and more than 280 extant species recorded, which is nearly three times the number estimated just a decade ago. Norine Yeung, malacology curator and co-author on the study added, “The results from these extensive survey efforts give us hope that there are still many species left that can be saved, but we need to act quickly and decisively if we are to beat the extinction clock that ticks louder with each passing day.”

The name *Endodonta christenseni* honors Bishop Museum scientist Dr. Carl C. Christensen for the many years he devoted to studying endangered land snails across the Pacific, and recognizes his efforts to bring attention to the status of this undescribed species.

For more information about this study visit <http://hbs.bishopmuseum.org/pubs-online/pdf/op138.pdf>.

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About Bernice Pauahi Bishop Museum:

Bernice Pauahi Bishop Museum’s mission is to inspire our community and visitors through the exploration, celebration and perpetuation of the extraordinary history, culture, and environment of Hawai‘i and the Pacific. The museum was founded in 1889 by Charles Reed Bishop in memory of his wife Bernice Pauahi Bishop, a royal descendant of King Kamehameha I. Today, the museum thrives as an educational center for the community and is widely regarded as the world’s premier institution for Hawaiian and Pacific content. Its vast collections of more than 25 million objects and specimens represent nine disciplines, and include more than 22 million biological specimens, over two million cultural objects, 115,000 historical publications, and one million photographs, films, works of art, audio recordings, and manuscripts. These collections tell the stories of the cultures and biodiversity of Hawai‘i and the Pacific as well as the proud legacy of scholarly research spanning 130 years. Bishop Museum proudly serves more than 200,000 visitors each year, including 20,000 children on school visits. To learn more about the museum’s research, collections, exhibits, and programs, visit www.bishopmuseum.org, follow @BishopMuseum on Twitter and Instagram, become a fan of Bishop Museum on Facebook, visit Bishop Museum’s YouTube channel at youtube.com/user/BishopMuseum, or call (808) 847-3511. Bishop Museum is a 501(c)(3) nonprofit organization.