

DAVID Y. IGE
Governor

JOSH GREEN
Lt. Governor



PHYLLIS SHIMABUKURO-GEISER
Chairperson, Board of Agriculture

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**TESTIMONY OF PHYLLIS SHIMABUKURO-GEISER
CHAIRPERSON, BOARD OF AGRICULTURE**

BEFORE THE HOUSE COMMITTEE ON AGRICULTURE

**FEBRUARY 5, 2020
8:35 A.M.
CONFERENCE ROOM 312**

**HOUSE BILL NO. 2032
RELATING TO THE STATE SNAIL**

Chairperson Creagan and Members of the Committee:

Thank you for the opportunity to testify on House Bill 2032, relating to the state snail. This bill designates pupu kuahiwi (*Laminella sanguinea*) as the Hawaii State Snail. The Department supports the intent of this measure.

Invasive species are a primary threat to Hawaii's agriculture and economy, and they have decimated the State's endemic land snail species. The Department concurs that designating a State snail will increase awareness of the imperiled status and cultural and ecological relevance of all Hawaiian land snails, help preserve their cultural and ecological significance, and encourage continued conservation of Native Hawaiian invertebrates.

Thank you for the opportunity to testify on this measure.



DAVID Y. IGE
GOVERNOR OF
HAWAII



**STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES**

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

**Testimony of
SUZANNE D. CASE
Chairperson**

**Before the House Committee on
AGRICULTURE**

**Wednesday, February 5, 2020
8:35 AM
State Capitol, Conference Room 312**

**In consideration of
HOUSE BILL 2032
RELATING TO THE STATE SNAIL**

House Bill 2032 proposes to designate pupu kuahiwi (*Laminella sanguinea*) as the official state snail. **The Department of Land and Natural Resources (Department) supports this measure.**

Hawaiian tree snails are known as the “Jewels of the Hawaiian Forest” due to their beautiful shells. They exist nowhere else on earth and help sustain healthy forest ecosystems. Many ancient Hawaiian tales refer to snails that sing in the forest. In Hawaiian custom, snails are the voice of the forest, and they embody the Polynesian oral tradition of passing on one’s genealogy through singing, making them extremely important to the cultural practices of hula and chant.

The *Laminella sanguinea* has a particularly unique genealogy. They are part of the family Amastridae, which is the only family entirely composed of species found only from Hawai‘i. Hawaiian snails represent one of the most stunning examples of species evolution in the world. Unfortunately, it is estimated that over half of the seven hundred fifty terrestrial Hawaiian snail species have gone extinct. Like many of the remaining species, *Laminella sanguinea* has a very small population and is now only known from a few remote locations.

The Department’s Snail Extinction Prevention Program is breeding *Laminella sanguinea* in laboratories and protecting wild populations with small predator proof fences. These provide complete protection from rats, invasive predatory snails, and Jackson’s chameleons. Inside these fences, the snail populations rebound naturally and provide hope for the future continuation of these species.

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

M. KALEO MANUEL
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

This two-part strategy is part of the emergency multi-island efforts underway to save our tree snails and ensure they remain on the landscape where they have lived for millennia. There is no other viable option for protecting wild populations of these species that once were a familiar and legendary part of the native Hawaiian forests.

The designation of the *Laminella sanguinea* as the official state snail will bring awareness to both the importance of these terrestrial snails, as well as the need to urgently save the remainder of the pupu kuahiwi.

Thank you for the opportunity to comment on this measure.



February 5, 2020

Representative Richard Creagan, Chair
Representative Lynn DeCoite, Vice Chair
Committee on Agriculture

Conference Room 312
Hawai'i State Capitol Honolulu, HI 96813

RE: Testimony on HB2032, Relating to the State Snail

Chair Cregan, Vice Chair DeCoite, and Committee Members:

My name is Melanie Ide and I am the President and CEO of the Bishop Museum, Hawai'i's State Museum of Natural and Cultural History. Bishop Museum is **in support of HB2032**, which would designate pūpū kuahiwi as the official state snail.

Snails play a valuable role for Hawaii's native ecosystems. Snails also have been a significant feature in Hawaiian cultural practices like hula and chants. By designating pūpū kuahiwi as the state snail, we will bring awareness to its importance for the health of our environment while honoring its place in the history of our host culture.

Thank you for the opportunity to provide testimony and we urge you to pass HB2032.

Me ka ha'a ha'a,

Melanie Y. Ide
President & CEO

HB-2032

Submitted on: 1/30/2020 9:27:10 PM

Testimony for AGR on 2/5/2020 8:35:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Benton Kealii Pang, Ph.D.	Individual	Support	No

Comments:

As a native Hawaiian conservationist, I support HB2032 which designates pÅ«pÅ¼ kuahiwi (*Laminella sanguinea*) as the official state snail.

Benton Kealii Pang, Ph.D.

HB-2032

Submitted on: 2/1/2020 6:16:18 AM

Testimony for AGR on 2/5/2020 8:35:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Patrick Conant	Individual	Support	No

Comments:

I strongly support HB2032, to give recognition to our threatened native Hawaiian tree snails. They need all the help they can get. I thank Representative Yamane for introducing this important Bill, that will hopefully and ultimately lead to better protection for native Hawaiian snails.

Sincerely,

Patrick Conant

Volcano, Hawaii

HB-2032

Submitted on: 2/2/2020 11:51:44 AM

Testimony for AGR on 2/5/2020 8:35:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Breezy	Individual	Support	No

Comments:

Native Hawaiian land snails play an integral role in Hawaiian culture and native ecosystems. This is important!!

HB-2032

Submitted on: 2/2/2020 4:00:41 PM

Testimony for AGR on 2/5/2020 8:35:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Connor Kalahiki	Individual	Support	No

Comments:

Hawai'i exhibits one of the most diverse radiations of native land snail species globally with species estimates ranging from 752 to 1,461 (Pilsbry 1948, Solem 1984, Cowie et al 1995) with 99.9% endemicity. Unfortunately, about 70% of the native land snail fauna is considered extinct with some families having only a few extant members. Only 5% of this fauna are protected federally. For example, Amastridae, the only endemic family with living representatives in the Hawaiian Archipelago, once contained 325 species, but within the last 25 years less than 25 of these species were recorded (Yeung et al 2018).

Currently, none of them are federally protected by the US Endangered Species Act. The designation of a state land snail could potentially raise awareness of the plight of this endangered fauna and may increase the protection of more species. Similar to the designation of the Pulelehua (Vanessa tameamea, Kamehameha butterfly) as the state insect, the designation of a state snail would garner state-wide interest our native snails and in the conservation invertebrates, broadly.

In Hawaiian culture, names hold great significance (Pukui, Haertig, and Lee 1972). *Kaì,,huli*, also referred to as *puì,,puì,,kanioe* (the shell sounding long), *puì,,puì,,kuahiwi* (mountain shell), and *puì,,puì,,moeone* (shell that sleeps in the sand), were viewed with high importance in Hawaiian society (Emerson 1997). Through the ways in which they were named, habitat preferences can be revealed. *Puì,,puì,,moeone*, for instance, describes the “shell that sleeps in the sand” and may be description of subfossils.

Kaì,,huli served as visual *hoì,,‘ailona* (omens) for positive events or signifying times of *pono* (righteousness). They were celebrated through *oli* (chants), *mele* (songs), *mo‘olelo* (stories), and *hula*. Snails were also thought to be the voice of the forest, and this description may be derived from the previous abundance of snails that used to be found in the forests of the past. When the wind would rustle

through the trees, the snails would rub against each other, producing a high pitch whistling noise. Shells were further described as *adorn*ing *mol*,,*’il*,, *wa*l,,*hine* (females of royalty) in order to portray one’s high status, showing the prominence that these animals were held (Sato et al 2018). Due to *ka*l,,*huli*’s cultural significance alone, their conservation should be made a priority.

Not only are these snails an integral component of Hawaiian culture but also are an essential part of native ecosystems. Native land snails operate as fungivores, whose role is to scrape fungus off of leaves; litter decomposers; and nutrient cyclers (Jennings & Barkham 1976, Theenhaus & Scheu 1996). They also serve as a food source for other native species such as *Hyposmocoma molluscivora*, the carnivorous moth native to Maui and O’ahu, and native forest birds such as the extinct *Po’ouli*, *Melamprosops phaeosoma* (Rubinoff & Haines 2006, Porter et al 2006). Unlike invasive snail species such as *Euglandina rosea*, *ka*l,,*huli* maintain healthy native forests through these roles as species are found primarily on the ground in leaf litter or rock rubbles and/or found on native plants such as *’ol*,,*hi’a lehua* ((*Metrosideros* sp.), *’ie’ie* (*Freycinetia aroborea*), *’ol*,,*ha*l,, *wai* (*Clermontia* sp.), and *ha*l,,*pu’u ’i’i* (*Cibotium menziesii*)

Selecting candidates for the state snail consisted of finding a species that best exemplified biological and cultural importance. *Amastridae* because it is the only extant endemic family in Hawai’i. We proposed to designate *Laminella sanguinea* (*Amastridae*) which is considered as Critically Endangered by the International Union for Conservation of Nature Red List. This species is endemic to O’ahu with other *Laminella* members endemic to Maui Nui. Its name is derived from the color of its shell, sanguine or blood-red, and the shell pattern is reminiscent of *kil*,,*ke’eke’e*, or zig-zag, *kapa* patterns.

HB-2032

Submitted on: 2/2/2020 8:31:30 PM

Testimony for AGR on 2/5/2020 8:35:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Taylor Maruno	Individual	Support	No

Comments:

I, Taylor Maruno, support this bill because Hawai'i's native land snails, such as *Laminella sanguinea*, are very important species both ecologically and culturally. These endangered snails need the recognition and attention they deserve from the public in order to make meaningful strides in terms of their conservation and protection. As a Malacology collections technician at the Bishop Museum, I have the opportunity to work with native Hawaiian land snails, and understand the importance in raising awareness about these species. People cannot protect something they do not know exists. Having a state snail would be a great way to introduce our native snails to the public, and a chance to stress the importance of their conservation.

HB-2032

Submitted on: 2/3/2020 7:35:23 AM

Testimony for AGR on 2/5/2020 8:35:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
caleb clarke	Individual	Support	No

Comments:

HB-2032

Submitted on: 2/3/2020 5:56:35 PM

Testimony for AGR on 2/5/2020 8:35:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Andrea Quinn	Individual	Support	No

Comments:

Dear Honorable Committee Members:

Please support HB2032. Designating a Hawaiian snail will help protect, and promote awareness of, Hawaii's endangered snail populations.

Thank you for the opportunity to present my testimony.

Andrea Quinn

Kihei

HB-2032

Submitted on: 2/3/2020 10:50:00 PM

Testimony for AGR on 2/5/2020 8:35:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Jennifer Azuma Chrupalyk	Individual	Support	No

Comments:

They're a food source for other native species — carnivorous caterpillars, and birds such as Hawaiian honeycreepers. More importantly, the snails help decompose and cycle nutrients back into the soil — an essential service in nutrient-poor Hawaiian forests. Unlike other snails that feed on plant tissue, pupu kuahiwi graze on the algae, bacteria, and fungi growing on the surface of leaves.

Now that fewer native snails inhabit the forest, hikers notice changes, says Yeung. “Old-timers say there’s a lot more fungus on trees now, so the trees are weaker.”

Across Hawai‘i, pupu kuahiwi disappeared, due to loss of habitat, over-harvesting by collectors, and predation by rats, Jackson’s chameleons, and rosy wolf snails.

Source: <https://www.mauimagazine.net/a-snails-pace/3/>

The Hawaiian Islands are home to about 500 species of endemic land snails — more than half of which are extinct or on the verge of extinction. Pupukahiwi is “mountain shell” in Hawaiian and is the generic name for land snails.

Source: <http://hawaiianforest.com/wp/native-snails-in-the-waianae-mountains/>

HB-2032

Submitted on: 2/4/2020 8:41:16 AM

Testimony for AGR on 2/5/2020 8:35:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Lynette Williams	Individual	Support	No

Comments:

I strongly support HB2032. Naming the Laminella sanguinea as our state land snail will help bring public awareness to some of our most endangered native Hawaiian species, and lead to important discussions about the role of all native species in our environment. Thank you for considering this bill.

Lynette Williams

Kaneohe, Hawaii

HB-2032

Submitted on: 2/4/2020 11:33:23 AM

Testimony for AGR on 2/5/2020 8:35:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Norine Yeung	Individual	Support	Yes

Comments:

Species are being lost in an incredible rate globally and this biodiversity crisis is well noted in Hawaii, the extinction capital of the world. The Hawaiian Islands host a spectacular radiation of land snails in the world, which are also the most severely impacted faunas in term of recorded extinctions. Unfortunately, the majority of Hawaii's land snails are not federally protected and many people do not understand or appreciate the important roles they play in a healthy ecosystem or to Hawaii's cultural heritage. We have only one remaining extant endemic family left in Hawaii - the Amastridae. We once had about 325 species in this family but only 23 species remain. These remaining species and many other Hawaiian land snails will likely go extinct within the next decade. What can we do? To start, designating a state snail, specifically *Laminella sanguinea*, an Amastridae species, will hopefully increase public knowledge and appreciation of these amazing animals. From Dr. Seuss The Lorax: "*Unless someone like you cares a whole awful lot, Nothing is going to get better. It's not.*"

HB-2032

Submitted on: 2/4/2020 12:35:33 PM

Testimony for AGR on 2/5/2020 8:35:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Kenneth Hayes	Individual	Support	No

Comments:

Hawaiian land snails have distinctive evolutionary, ecological and cultural legacies and are important in understanding biodiversity. These snails play an essential role in the decomposer food web and nutrient cycling in an ecosystem and many snails are also food for other animals like the Po’ouli and Hyposmocomma molluscivora (our endemic carnivorous caterpillar). And they are important culturally. For example, Hawaiian mo’olelo tell of snails singing in the mountains connected to good omen or love stories. The diversity and abundance of these snail species reflects the health of a forest and sadly, many are vanishing quickly. The Hawaiian land snail fauna is arguably the most diverse in the world in relation to land area: >750 recognized species in only 13 families. Unfortunately, habitat destruction and invasive species have drastically reduced the numbers of extant species, with some family extinction estimates as high as 95%, such as the Amastridae. The Amastridae is the only extant endemic family left in Hawaii. Once having at least 325 species, less than 25 species are left with several extinct in the wild and only existing in captive rearing facility. Designating a state snail, such as *Laminella sanguinea* – an amastrid species with only a few populations left, will hopefully garner attention to the extinction plight of Hawaii’s land snails and increase public and conservation support for these disappearing jewels of the forest.

HB-2032

Submitted on: 2/4/2020 1:02:11 PM

Testimony for AGR on 2/5/2020 8:35:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Chris Hobbs	Individual	Support	No

Comments:

Snails, both in Hawaii and worldwide, provide essential ecosystem functions, such as nutrient turnover, facilitating plant health, and watershed quality. In Hawaii especially they are a huge part of the amazing culture of the islands. With the peril that many invertebrate and snail species are facing in light of habitat destruction, invasive species, and climate change, snails being recognised by the state, through designation of a state snail species, will be invaluable.

Accepting this bill will help raise awareness for the amazing diversity of snail species across the Hawaiian islands as well as the plight many of these species are threatened with, and will demonstrate the state's dedication to conservation of its native species. Additionally, as pupu kuahiwi is regarded as a critically endangered species by the IUCN, this is the first step in allowing legal protection for this species to be implemented. Therefore, I fully support this bill.

Dr. Christopher Hobbs