

# SB272 SD1

Measure Title: RELATING TO RAT LUNGWORM DISEASE.

Report Title: Rat Lungworm Disease; University of Hawaii at Hilo; Appropriation (\$)

Description: Appropriates funds to the University of Hawaii at Hilo for programs, studies, and activities related to rat lungworm disease. Conditions release of the funds on the University submitting a report to the legislature with specific strategies and objectives that the University, along with the Department of Health, Department of Land and Natural Resources, Department of Agriculture, and Joint Rat Lungworm Task Force, plan to implement to further efforts to prevent and eradicate rat lungworm disease. (SD1)

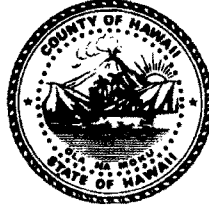
Companion: [HB474](#)

Package: None

Current Referral: HRE/WTL/AEN, CPH/WAM

Introducer(s): K. KAHELE, BAKER, GREEN, INOUYE, RUDERMAN

Harry Kim  
Mayor



Wil Okabe  
Managing Director

Barbara J. Kossow  
Deputy Managing Director

County of Hawai'i  
Office of the Mayor

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(808) 323-4444 • Fax (808) 323-4440

February 23, 2017

Senator Rosalyn Baker  
Commerce, Consumer Protection and  
Health  
Senator Jill Tokuda  
Ways and Means  
Hawai'i State Capitol  
Honolulu, HI 96813

Dear Chairs Baker and Tokuda, and members:

RE: **SB 272, SD1**

SB 272, SD1 says that rat lungworm disease has stricken over 70 people in the State, claiming lives and causing grave disabilities. While primarily affecting the Big Island, it has now been identified on Maui as well.

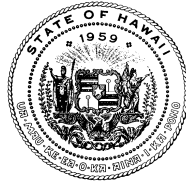
Although the disease is not well known, it has devastating effects on its victims. One can only hope that we can get a handle on this disease before it destroys more lives.

Fortunately, our University is willing and able to assist with research and education, but substantial funding is needed to support its efforts. We certainly believe that such an investment of state dollars is warranted.

Please approve funding for SB 272, SD1.

Respectfully submitted,

Harry Kim  
Mayor



STATE OF HAWAII  
DEPARTMENT OF HEALTH  
P. O. Box 3378  
Honolulu, HI 96801-3378  
doh.testimony@doh.hawaii.gov

**Testimony COMMENTING on S.B. 272 S.D. 1  
RELATING TO RAT LUNGWORM DISEASE**

SENATOR ROSALYN H. BAKER, CHAIR

SENATE COMMITTEE ON COMMERCE, CONSUMER PROTECTION, AND HEALTH

SENATOR JILL N. TOKUDA, CHAIR

SENATE COMMITTEE ON WAYS AND MEANS

Hearing Date: February 28, 2017

Room Number: 211

1 **Fiscal Implications:** The Department of Health appreciates the intent of S.B. 272, but defers to  
2 the priorities set forth in the Executive Biennium Budget.

3 **Department Testimony:** This measure seeks to appropriate funds in the 2017–18 and 2018–19  
4 fiscal period (2 years) to the University of Hawaii at Hilo for programs, studies, and activities  
5 related to the prevention and eradication of rat lungworm disease. This measure also provides  
6 that the University of Hawaii at Hilo shall collaborate with the Department of Health,  
7 Department of Land and Natural Resources, Department of Agriculture, and the Governor’s Joint  
8 Rat Lungworm Task Force, to create a statewide plan for the prevention and eradication of rat  
9 lungworm disease.

10 The Department of Health concurs with and supports the consensus of the Joint Rat Lungworm  
11 Task Force, which is that outreach and education are essential priorities in addressing the risk of  
12 angiostrongyliasis in Hawaii’s communities.

13 In addition to educational activities conducted during the investigation of reported cases of  
14 angiostrongyliasis illness, DOH efforts, in conjunction with partners, have included statewide  
15 school garden food safety workshops and the distribution of flyers to at-risk communities as well  
16 as commercial food establishments. We welcome the opportunity to continue our work with  
17 partners to improve public health education and prevention of this serious disease.

18 Thank you for the opportunity to testify.

DAVID Y. IGE  
GOVERNOR OF  
HAWAII



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

KEKOA KALUHIWA  
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.  
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

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

Testimony of  
SUZANNE D. CASE  
Chairperson

Before the Senate Committees on  
COMMERCE, CONSUMER PROTECTION, AND HEALTH  
and  
WAYS AND MEANS

Tuesday, February 28, 2017  
9:30 AM

State Capitol, Conference Room 211

In consideration of  
SENATE BILL 272, SENATE DRAFT 1  
RELATING TO RAT LUNGWORM DISEASE

Senate Bill 272, Senate Draft 1 proposes to appropriate funds to support research, control, and outreach activities relating to rat lungworm disease. **The Department of Land and Natural Resources (Department) supports this measure provided that its passage does not replace or adversely impact priorities indicated in the Executive Budget request.**

The Department recognizes the threat of rat lungworm disease and the lack of information on statewide distribution of the parasite *Angiostrongylus cantonensis* and its hosts. The Department also notes that the Hawaii Invasive Species Council (HISC), which is administered by the Department, received proposals for research and education regarding this disease in Fiscal Year (FY)16 and FY17 but was unable to identify adequate resources to support all of these efforts. In FY17 the HISC is providing partial funding support to a project developing outreach programs and materials regarding rat lungworm disease under the direction of the University of Hawaii at Hilo. Additional funding support for a more comprehensive research, control, and outreach program, as described in this measure, would be strongly beneficial. The Department supports this measure, provided that the appropriations described therein do not impact appropriations to the HISC or other priorities indicated in the Executive Budget request.

The Department notes that Senate Draft 1 streamlines funding to the University of Hawaii at Hilo for the implementation of tasks described in the measure, and is supportive of this approach.

Thank you for the opportunity to comment on this measure.

DAVID Y. IGE  
Governor

SHAN S. TSUTSUI  
Lt. Governor



State of Hawaii  
**DEPARTMENT OF AGRICULTURE**  
1428 South King Street  
Honolulu, Hawaii 96814-2512  
Phone: (808) 973-9600 FAX: (808) 973-9613

SCOTT E. ENRIGHT  
Chairperson, Board of Agriculture

PHYLLIS SHIMABUKURO-GEISER  
Deputy to the Chairperson

**TESTIMONY OF SCOTT E. ENRIGHT  
CHAIRPERSON, BOARD OF AGRICULTURE**

**BEFORE THE SENATE COMMITTEES ON COMMERCE, CONSUMER  
PROTECTION, & HEALTH & WAYS & MEANS**

**FEBRUARY 28, 2017  
9:30 A.M.  
CONFERENCE ROOM 211**

**SENATE BILL NO. 272 SD1  
RELATING TO RAT LUNGWORM DISEASE**

Chairpersons Baker and Tokuda and Members of the Committees:

Thank for the opportunity to testify on Senate Bill No. 272 SD1, relating to rat lungworm disease. The Department supports the intent of this measure provided it does not impact the Department's priorities submitted in the Executive Budget.

Rat lungworm disease is a serious and relatively new pathogen to plague the consumption of fresh produce grown in the islands. There is a great need to conduct research into the biology of the carriers of the disease, the ways in which it can be spread, outreach to the public in understanding the condition, and methods that can be employed to control and/or contain it.

The department supports the intent of SB272 SD1 provided it is funded at a level in which research can be conducted and carried out to achieve implementation of prevention measures. It is especially critical that Integrated Pest Management practices can be identified that minimize the use of chemicals and employ a variety of management techniques that will provide long term control of the pathogen. Outreach is an especially critical component of any IPM tactics. The more that the public understands the hazards of the disease, the less of a public health issue it will become.



Page 2

As noted in the bill, the medical expenses associated with contracting the disease can run into the millions. Research dollars spent in developing long term and effective management programs are minor compared to the expected medical bill associated with those who contract the illness.

Thank you for the opportunity to testify on this measure.



P.O. Box 253, Kunia, Hawai'i 96759  
Phone: (808) 848-2074; Fax: (808) 848-1921  
e-mail info@hfbf.org; www.hfbf.org

February 28, 2017

HEARING BEFORE THE  
SENATE COMMITTEES ON COMMERCE, CONSUMER PROTECTION, AND  
HEALTH  
SENATE COMMITTEES ON WAYS AND MEANS

**TESTIMONY ON SB 272, SD1  
RELATING TO RAT LUNGWORM DISEASE**

Room 211  
9:30 am

Aloha Chairs Baker and Tokuda, and Vice Chairs Nishihara and Dela Cruz, and Members of the Committees:

I am Randy Cabral, President of the Hawaii Farm Bureau (HFB). Organized since 1948, the HFB is comprised of 1,900 farm family members statewide, and serves as Hawaii's voice of agriculture to protect, advocate and advance the social, economic and educational interests of our diverse agricultural community.

**Hawaii Farm Bureau supports SB 272 SD1, Relating to Rat Lungworm Disease.**

Providing safe and wholesome food is a priority for the Farm Bureau and its members. Unfortunately, not enough is currently known about Rat Lungworm Disease, or angiostrongyliasis, to fully protect the public. For example, although we know that people in Hawaii can get the disease by eating food contaminated by the larval stage of *A. cantonensis* worms found in raw or undercooked snails or slugs, and we know that people have also become infected by eating raw produce that contains a small infected snail or slug, or part of one, it is *not* known whether even just the slime left by infected snails and slugs is able to cause infection. Nor is it known if infections can be transmitted via water catchment systems.

This is critical information since the disease can cause a rare type of meningitis (eosinophilic meningitis) that is extremely painful, debilitating, and can be deadly. Because there is no specific treatment for the disease, patients are only given supportive therapy and pain medication.

As more people are encouraged to grow their own food in backyard gardens, and school gardens are becoming more prevalent, the risk of being infected with this disease increases. Nutritionists advise the public to eat plenty of fresh leafy vegetables. However, without knowing enough about the transmission of rat lungworm disease, this advice may be risky in Hawaii in areas infested by snails and slugs. We need to know if the slime alone can cause the disease, and if washing or other pre-consumption measures will prevent transmission.

Backyard gardeners, school garden participants, and others who may not practice pest management to effectively control snails and slugs, or those who purchase or use greens from these sources, may be particularly at risk.

HFB supports funding of the University and the appropriate state agencies to help learn more about the disease and to prevent its spread.

Thank you for the opportunity to provide testimony on this measure.



# Hawai'i Farm to School and School Garden Hui

Coordinated through The Kohala Center



## TESTIMONY

House Committee on Commerce,  
Consumer Protection, and Health  
House Committee on Ways and Means  
February 28, 2017, 9:30 a.m.

### Island Networks & Organizations

Farm to Keiki (Preschool)  
FoodCorps Hawai'i  
Grow Some Good  
Hawai'i Island School Garden  
Network/The Kohala Center  
Tolani School  
Ka Ohana O Na Pua  
Kaua'i School Garden Network/  
Malama Kaua'i  
Kōkua Hawai'i Foundation  
(ĀINA In Schools)  
Maui School Garden Network  
Moloka'i School Garden Network/  
Sustainable Moloka'i  
O'ahu Farm to School Network

### **SB272, SD1: RELATING TO RAT LUNGWORM DISEASE**

Chairs Baker and Tokuda, Vice Chairs Nishihara and Dela Cruz, and Members of the Committees,

The Hawai'i Farm to School and School Garden Hui **strongly supports SB272, SD1.**

Rat Lungworm Disease (RLWD) is an issue that can no longer be ignored in Hawai'i. There is a desperate need for funding, research, monitoring/control, and educational outreach dedicated to this disastrously debilitating disease, so that there are ZERO cases going forward.

The Hawai'i Farm to School and School Garden Hui stands ready to assist with educational outreach to Hawai'i's students and schools.

We have created a School Garden Safety Manual, which includes information on RLWD, and are holding workshops around the state to bring this information to educators. The manual is available online via The Kohala Center's website under Farm to School Resources (link to School Garden Safety Manual: [https://drive.google.com/file/d/0B\\_Qw59RHMj\\_QR3dZQ3o5UXYxWWc/view](https://drive.google.com/file/d/0B_Qw59RHMj_QR3dZQ3o5UXYxWWc/view)).

Formed in 2010, the Hawai'i Farm to School and School Garden Hui is a statewide network comprised of five island-level networks, active organizations, and representatives of the Hawai'i Departments of Agriculture, Education, and Health. Our mission is to strengthen Hawai'i's statewide farm to school and school garden movement.

Please pass this bill to enable the ERADICATION of RLWD in Hawai'i.

Thank you very much.

Sincerely,

Lydi Morgan Bernal  
Coordinator  
Hawai'i Farm to School and School Garden Hui  
schoolgardenhui@kohalacenter.org  
www.hawaiischoolgardenhui.org

### State Agencies

Hawai'i Department of Agriculture:  
Farm to School Program  
Hawai'i Department of Education:  
Hawai'i Child Nutrition Programs  
Hawai'i Department of Education:  
School Food Services Branch  
Hawai'i Department of Health:  
Healthy Hawai'i Initiative  
UH CTAHR O'ahu Master Gardeners

BIISC  
23 E. Kawili St.  
Hilo, HI 96720  
(808) 933-3340  
[biisc@hawaii.edu](mailto:biisc@hawaii.edu)  
[www.biisc.org](http://www.biisc.org)



RE: SB272 Relating to Rat Lungworm Disease

Aloha,

I am writing on behalf of the Big Island Invasive Species Committee to express the Committee's support for SB272, allocating resources for research into angiostrongylosis (rat lungworm disease).

The rat lungworm parasite is a serious threat to both our health and our economy. Primarily carried through the activity of two common invasive species, rats and slugs, the parasite has caused debilitating illness, pain, and even death for some of our community members, making it a priority for public health.

We are very concerned by the potential from transmission of the parasite in catchment water. Not only are many of our island's residents on catchment, with no alternative water source, many of our farmers depend on catchment to irrigate their crops. As the semi-slug continues to expand its range on the Big Island, more of our agricultural regions are at risk from invasion, threatening the safety and viability of Big Island agriculture.

We have seen the work being done at College of Pharmacy to investigate rat lungworm and are very impressed with the efforts of Dr. Sue Jarvi and her team. BIISC has committed to working with the Rat Lungworm working group on outreach and education efforts in any way that we can. We depend on this working group to provide us with the information, education and materials we need to promote a message of safety and health in our community, and so we ask that the necessary funding be put in place to ensure that this effort is maximized.

Mahalo for your consideration,

Franny Kinslow Brewer  
Communications Director

**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Wednesday, February 22, 2017 9:12 PM  
**To:** CPH Testimony  
**Cc:** douglasperrine@yahoo.com  
**Subject:** \*Submitted testimony for SB272 on Feb 28, 2017 09:30AM\*

**SB272**

Submitted on: 2/22/2017

Testimony for CPH/WAM on Feb 28, 2017 09:30AM in Conference Room 229

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Douglas Perrine	Individual	Support	No

Comments:

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**To:** CPH Testimony  
**Cc:** rontthi@gmail.com  
**Subject:** \*Submitted testimony for SB272 on Feb 28, 2017 09:30AM\*

**SB272**

Submitted on: 2/22/2017

Testimony for CPH/WAM on Feb 28, 2017 09:30AM in Conference Room 229

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Ronald Taniguchi, Pharm.D.	Individual	Support	No

Comments:

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**Cc:** cpuna@webtv.net  
**Subject:** Submitted testimony for SB272 on Feb 28, 2017 09:30AM

**SB272**

Submitted on: 2/23/2017

Testimony for CPH/WAM on Feb 28, 2017 09:30AM in Conference Room 229

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
cheryl carocci	Individual	Support	No

Comments: please pass this, there are far too many slugs and illness undetected here in puna

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**Cc:** rodgerhansen22@gmail.com  
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**SB272**

Submitted on: 2/23/2017

Testimony for CPH/WAM on Feb 28, 2017 09:30AM in Conference Room 229

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Rodger Hansen	Individual	Support	No

Comments: It is imperative the UHH be the leader in this research and education of Rat lungworm disease (RLWD). It is they that led the way for the research and education and they must be the leader in continuing this fight against this scary disease which has lasting negative issues impacting those attacked. Please support this bill with UHH being the primary decision maker. Thank you for your support.

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**SB272**

Submitted on: 2/23/2017

Testimony for CPH/WAM on Feb 28, 2017 09:30AM in Conference Room 229

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
elizabeth hansen	Individual	Support	No

Comments: It is imperative the UHH be the leader in this research and education of Rat lungworm disease (RLWD). It is they that led the way for the research and education and they must be the leader in continuing this fight against this scary disease which has lasting negative issues impacting those attacked. Please support this bill with UHH being the primary decision maker. Thank you for your support.

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Aloha Senator Rosalyn Baker,

My name is Kathleen Howe and I am a member of the Hawaii Island Rat Lungworm Working Group at the University of Hawaii at Hilo. I am testifying in support of SB 272 as the need for funding for research and education in Hawaii for rat lungworm disease is essential. Annual cases of rat lungworm disease continue to be reported and serious cases have resulted in deaths and permanent disability in Hawaii. We can no longer ignore this serious health problem. Every year since my son's case of angiostrongyliasis, or rat lungworm disease in 2008, I have been contacted by multiple victims of the disease. In the past year two toddlers were infected and sent to Honolulu for treatment. In December of 2014 and March of 2015 two people of more advanced age were infected and both succumbed. This disease is costing all of us money, health, and peace of mind. In January I completed a Masters of Science degree, and for the past five years I have been conducting research and education outreach on this issue. I feel I can speak with some authority on the subject.

At the 59<sup>th</sup> annual meeting of the American Society of Tropical Medicine and Hygiene in Atlanta, Georgia, information was presented on the results of the Center for Disease Control (CDC), Hawaii Department of Health (DOH), and the United States Department of Agriculture (USDA)/Pacific Basin Agriculture Research Center (PBARC) study on Hawaii Island in 2005- 200. Investigators showed the infection rate in mollusks (slugs and snails) ranged from 24 to 78%, depending on species analyzed, and they confirmed that 57% of the rats were



positive by examination, having active infection with worms found in the heart and lungs, and 100% were positive by examination of lung tissue sample using realtime PCR, providing DNA evidence of current or past infection. Of the rats tested by PCR, 32% had very high infection levels, which corresponded to more than 100 larvae in ~25mg of tissue. The presenters remarked at the conference that “the severe cases of eosinophilic meningitis being reported could be due to overexposure of humans to highly infected mollusks: there are no measures in place in Hawaii to control the spread of *A. cantonensis*.” The authors concluded “angiostrongyliasis may be a more serious public health issue in Hawaii than currently estimated and measures to control its spread in mollusks and rodents may be warranted” (Banda et al. 2010). From my research I can attest that infection levels on Hawaii Island continue to be extremely high, and all of the main Hawaiian Islands have infection.

The State of Hawaii estimates it imports 85-90% of its food, making it vulnerable to natural disasters and world events should there be a disruption in the shipping and the food supply. The public has shown avid interest in supporting local food production and proof of support can be seen in the growing number of farmers’ markets, grocery stores, and restaurants selling locally grown produce and products. As the interest in the local food movement has grown so has the support for school garden projects. Each of the main Hawaiian Islands now has a school garden hui (group) and there are an estimated 200 school and youth gardens in the State of Hawaii, with almost 70 of these located on Hawaii Island. To further promote healthy diets and local agriculture, in 2015 the Hawaii Farm to School Bill, a program intended to introduce students to healthier eating habits by introducing them to new vegetables and fruits that are procured from local farmers, was signed into law. However, some nine years after the 2007 CDC and DOH

study was conducted in Hawaii, there has been no concerted effort made by any county, state or federal agency to control the spread of *A. cantonensis* in mollusks and rats, nor has there been a public education campaign to encourage residents to control these hosts. While public support of the local food movement has grown, efforts to control the spread of the rat lungworm parasite and its hosts, and to educate the general public of risks and disease prevention has not followed a similar trend.

In 2012 I co-authored a 2<sup>nd</sup> grade activity book on rat lungworm disease, based on the Hawaii State Science Standards. We've distributed all 10,000 copies printed and would like to print more, as they are frequently requested. In 2015-2016 I worked with five partner schools on Hawaii Island to develop an Integrated Pest Management plan for invasive slugs and snails for school gardens, and accompanying STEM curriculum. While we've received partial funding to continue the project through the Hawaii Invasive Species Program (HIISC), so that the management plan and curriculum is available throughout the state. More funding will be crucial for implementation.

Much of my graduate research looked at the potential for infection by water, as we have many residents living in Hawaii County, who rely on rainwater catchment, as do many farms. My studies show that drowned slugs and snails, particularly the very effective semi-slug, can indeed shed large numbers of infective stage rat lungworm parasites when drowned, and the larvae can live for some time outside of the slug/snail host. Funded studies are crucial to know what size filters will keep the parasite out of the water, and if UV light is effective. Transmission may also be possible through skin. A mouse study conducted in 1991 showed that skin or mucosa contact with infective stage larvae may cause angiostrongyliasis. The worm recovery ratio efficiency from lacerated skin

infection (40%) was higher than those from the unabraded skin (6%) or the foot pad infections (4%). Anal infection had higher worm recovery (51%) than vaginal (28%) or conjunctival (21%) infections. Mice infected by subcutaneous inoculation had a significantly higher worm burden than those infected orally. The simple act of bathing or washing in inadequately filtered catchment water could theoretically be a source of exposure. Water transmission may be one of the reasons the case numbers of angiostrongyliasis are highest for Hawaii County.

In lieu of the continued number of cases occurring annually, the need for funding for research and education in Hawaii for rat lungworm disease is not just crucial it is essential. Initiating host control measures and de-worming rats may be a way to reduce parasite load in hot spots. Farmers need to implement control measures. Food handlers need to be educated. Farm to School workers and school garden teachers need to be educated. Rainwater catchment users need to be educated. Medical professionals, residents, and visitors to Hawaii all need to be educated about rat lungworm disease. An easy diagnostic tool is essential and work on that is in progress but funding is necessary to make this simple blood test available and in use throughout the state. On behalf of the people of Hawaii, and to ensure the health and mental well-being of both residents and visitors alike, I ask you to fully support SB 272 and help us reduce or eliminate more cases of this horrific disease.

Sincerely,

Kathleen Howe

Email: [maryk8@hawaii.edu](mailto:maryk8@hawaii.edu), [kehauhowe@gmail.com](mailto:kehauhowe@gmail.com)

**From:** mailinglist@capitol.hawaii.gov  
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**To:** CPH Testimony  
**Cc:** dbicakci@hawaii.edu  
**Subject:** \*Submitted testimony for SB272 on Feb 28, 2017 09:30AM\*

**SB272**

Submitted on: 2/26/2017

Testimony for CPH/WAM on Feb 28, 2017 09:30AM in Conference Room 229

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Deniz Bicakci	Individual	Support	No

Comments:

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**To:** CPH Testimony  
**Cc:** marty.poorman@gmail.com  
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**SB272**

Submitted on: 2/26/2017

Testimony for CPH/WAM on Feb 28, 2017 09:30AM in Conference Room 229

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
martha poorman	Individual	Support	No

Comments:

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**Cc:** steven\_jacquier@hotmail.com  
**Subject:** Submitted testimony for SB272 on Feb 28, 2017 09:30AM

**SB272**

Submitted on: 2/26/2017

Testimony for CPH/WAM on Feb 28, 2017 09:30AM in Conference Room 229

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Steven Jacquier	Individual	Support	No

Comments: The cost to Hawaii of rat lungworm disease is already in the millions via medical costs, Special Ed school services, and lost revenues (disabled workers lost from workforce and tax rolls). We are really going to suffer economically once visitors perceive the establishment in Hawaii as sweeping this issue under the rug and exposing them to risk rather than forthrightly stepping up to the plate by demonstrably backing research, prevention, and education countering this emergent disease. A penny spent on effective prevention is worth hundreds to thousands of dollars in expensive care and lost revenues after the fact. Please support SB 272 on both scientifically rational and fiscally prudent grounds. Doing so is the only economically responsible and socially conscious choice to make. Mahalo, Steven Jacquier Scientific Researcher & Professor (Retired)

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Testimony Presented Before the  
Senate Committees on Consumer Protection and Health, and Ways and Means  
Tuesday, Feb. 28, 2017, 9:30 am

**SB 272 - RELATING TO RAT LUNGWORM DISEASE**

Chair Baker and Chair Tokuda and members of respective committees.

My name is Dr. Susan Jarvi and I am a Professor in the Department of Pharmaceutical Sciences at the University of Hawaii at Hilo, Daniel K. Inouye College of Pharmacy. My lab has been the lead in rat lungworm education and research for the past 5 years in the state.

I am speaking as a concerned individual in strong support of SB 272 Relating to Rat Lungworm Disease (RLWD).

Hawaii is the epicenter for rat lungworm disease (angiostrongyliasis) in the United States, and is among the most serious threats to human health of all diseases carried by wildlife in Hawaii. Most infections are presumed to be due to the ingestion of infected slugs or snails on fresh produce or possibly from untreated catchment water. The nematode reproduces in rats and develops in slugs and snails. Although most human cases have originated in east Hawaii Island, there have been cases reported on all of the major Hawaiian Islands. Why so many cases originate on Hawaii Island is unclear. Thus, funding is needed to address this grave issue.

Rat lungworm is a preventable disease, but only if one is informed about it. A significant component of this bill is geared toward prevention through education. My lab (largely through the efforts of Kay Howe) has been the first in the US, and in the world, to develop and implement curriculum to educate our keiki, who can then educate their `ohana on how to best prevent RLWD. While this RLWD curriculum currently only involves 5 schools on Hawaii Island, funding is needed to develop this into a statewide program available for all keiki (especially those in schools with school garden programs). Funding is needed for tracking the spread of highly infected slugs throughout the islands and pinpoint areas of high transmission which could then be targeted for control. We could also run experiments necessary to evaluate the possibility of using rat baits containing anti-parasitic drugs to deworm rats and break the disease cycle.

Funding is also needed to determine which approved vegetable washes are most effective at killing larvae so people can better wash their produce, and continue to eat local and fresh produce safely. East Hawaii has the highest use of catchment water in the state. We need to know if the infective stage of the larvae can be detected in catchment water and the best practices for treating catchment water as we have found that infective stage RLW larvae can live in rainwater for many weeks.

RLWD has already caused multiple deaths; many victims suffer long-term disability.

RLWD impacts the people of Hawaii and its visitors, it impacts public health as a global emerging infectious disease, it impacts agriculture through the loss of public confidence in locally grown produce, and it puts food self-sufficiency and food security (especially with the Farm to School Bill) for all of Hawaii at risk.

Our research group has already built a strong research and education foundation with which to carry out these studies – with relatively very little funding. We are poised to provide the research and educational efforts needed to truly begin to prevent rat lungworm disease in Hawaii and elsewhere. The state of Hawaii needs to take immediate action. Please support SB 272 with full, necessary funding.



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**Cc:** riverspirit99@yahoo.com  
**Subject:** Submitted testimony for SB272 on Feb 28, 2017 09:30AM

**SB272**

Submitted on: 2/26/2017

Testimony for CPH/WAM on Feb 28, 2017 09:30AM in Conference Room 229

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Elizabeth O'Day	Individual	Support	No

Comments: Rat lung worm parasite abatement is very needed in Hawaii. Please support research to end this problem. I personally know over 20 people who have been infected, and the list grows.

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**To:** CPH Testimony  
**Cc:** jamuddman@yahoo.com  
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**SB272**

Submitted on: 2/26/2017

Testimony for CPH/WAM on Feb 28, 2017 09:30AM in Conference Room 229

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
John Mudd	Individual	Support	No

Comments: It is of utmost importance that this measure be approved asap. Detection of the extent of the infections in Puna district of Big Island is the first step in control of the epidemic before it spreads to all parts of Hawaii agriculture and affects the tourist industry in addition to local residents.

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**To:** CPH Testimony  
**Cc:** Jimbraun455@mac.com  
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Submitted on: 2/26/2017

Testimony for CPH/WAM on Feb 28, 2017 09:30AM in Conference Room 229

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
James H Braun	Individual	Support	No

Comments:

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**To:** CPH Testimony  
**Cc:** raetherrien@yahoo.com  
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Submitted on: 2/26/2017

Testimony for CPH/WAM on Feb 28, 2017 09:30AM in Conference Room 229

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Rae Therrien	Individual	Support	No

Comments: I strongly support SB272 for funds for researching and preventing rat lungworm disease. I have medical professional friends who work in the Hilo Medical Center E.R. and I.C.U. who have witnessed the effects of people contracting this disease. Although we personally spend a lot of money each year for snail and slug prevention and wash all of our greens very thoroughly, it is still very worrisome. Each time one goes out to eat or is at a potluck, there always lurks the possibility of contracting this condition. Please support this bill so that we can find out more about how to prevent it and educate the public. Yes, it is only on our island thus far, but as you know, little stays just on one island for long.

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**SB272**

Submitted on: 2/25/2017

Testimony for CPH/WAM on Feb 28, 2017 09:30AM in Conference Room 229

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Shelley Ham	Individual	Support	No

Comments:

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**To:** CPH Testimony  
**Cc:** dorothymaggi@gmail.com  
**Subject:** Submitted testimony for SB272 on Feb 28, 2017 09:30AM

**SB272**

Submitted on: 2/25/2017

Testimony for CPH/WAM on Feb 28, 2017 09:30AM in Conference Room 229

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Dorothy Maggi	Individual	Support	No

Comments: Water purification techniques would be the most significant issue facing those of us living on catchment on the East coast of Hawaii Island. We have lived here for 6 years and fear eating fresh uncooked vegetables in restaurants or purchasing them in markets/grocery stores. Perhaps a declaration by commercial providers, ie; that the produce has come from a non-ratlung infested area would help?

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## **Testimony Regarding Funding for Rat Lung Worm Disease Research**

February 25, 2017

By Karen Pellegrin, PhD, MBA

Director of Continuing Education and Strategic Planning

Founding Director of the Center for Rural Health Science

Daniel K. Inouye College of Pharmacy

University of Hawaii at Hilo

My name is Dr. Karen Pellegrin and I am a senior faculty member and administrator at the UH Hilo College of Pharmacy. I am testifying in **strong support** of SB272 related to rat lung worm disease. I am testifying as a private citizen and not as a representative of UH Hilo.

I support this bill for the following reasons:

- 1) **Significant health risk to Hawaii residents and visitors:** Hawaii is the only state in the US where rat lung worm disease infection in humans is endemic<sup>1</sup>. This disease, caused by the *Angiostrongylus cantonensis* parasite, is the most common cause of eosinophilic meningitis in the Pacific and can cause devastating brain damage, other neurological problems, and death<sup>2</sup>. Humans can become infected when they ingest infected snails or slugs or foods contaminated by the slime from infected snails or slugs, though other means of infection are possible<sup>3</sup>. Much additional research is needed to determine the risk factors, prevention strategies, and treatments.
- 2) **Threat to Hawaii's economy:** The state of Hawaii has made recommendations to increase the amount of locally grown food consumed by Hawaii's residents as this will help improve the state's economy<sup>4</sup>. Yet systems are not in place to protect consumers from rat lungworm risk in locally grown foods. For example, local news reported in 2014 that a snail was found in a Big Island school lunch salad made from locally grown lettuce<sup>5</sup>. Failures to control this disease also jeopardize Hawaii's tourism industry through highly publicized cases of rat lungworm infection in visitors<sup>6</sup>.
- 3) **Dr. Sue Jarvi's expertise and experience:** Dr. Jarvi's lab, located at UH Hilo on the Big Island where rat lungworm disease is most prevalent, is one of the few research labs in the US with extensive experience studying rat lungworm disease. A biologist with expertise on many species and diseases unique to Hawaii, Dr. Jarvi has led her team in conducting important research on rat lung worm disease, including the detection of the rat lungworm parasite in slugs<sup>7</sup> and rats<sup>8</sup> and testing a vaccine<sup>9</sup>.

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<sup>1</sup> <http://www.ajtmh.org/content/85/4/685.full>

<sup>2</sup> <http://www.sciencedirect.com/science/article/pii/S0001706X14003143>

<sup>3</sup> <http://www.cdc.gov/parasites/angiostrongylus/epi.html>

<sup>4</sup> [http://files.hawaii.gov/dbedt/op/spb/INCREASED\\_FOOD\\_SECURITY\\_AND\\_FOOD\\_SELF\\_SUFFICIENCY\\_STRATEGY.pdf](http://files.hawaii.gov/dbedt/op/spb/INCREASED_FOOD_SECURITY_AND_FOOD_SELF_SUFFICIENCY_STRATEGY.pdf)

<sup>5</sup> <http://khon2.com/2014/02/05/snail-found-in-big-island-school-lunch/>

<sup>6</sup> <http://www.nydailynews.com/life-style/health/man-contracts-rat-lungworm-disease-hawaii-paralyzing-ailment-caused-microscopic-parasite-article-1.1009273>

<sup>7</sup> <http://www.sciencedirect.com/science/article/pii/S0166685112002125>

<sup>8</sup> <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0123064>

<sup>9</sup> <http://www.sciencedirect.com/science/article/pii/S0166685112002125>

## Testimony in Strong Support of SB 272

Hearing Date: 2/28/17

Hello, my name is Kate Burroughs and I am a resident of Laupahoehoe, Hawaii Island.

I am in strong support of SB 272, to fund more research into rat lungworm disease and how to reduce exposure to this sometimes deadly disease. It has been present on Hawaii Island since at least 2001 and has resulted in some people having near death experiences, being in comas for several months and left with major disabilities when they survive being infected. We must have better diagnosis and control of this disease.

In the past few years, our property has become infested with the semi-slug, which is a new, non-native, invasive species which is a vector of rat lungworm disease. University of Hawaii testing elsewhere has shown that the semi-slugs are 85% contaminated with rat lungworm disease. We have recently found high numbers of these slugs near our water catchment tank, which is quite worrisome. While we have good filtration and UV treatment of the water, no one wants to come down with this disease.

Please support the funding of this needed research.

Mahalo,  
Kate Burroughs

P.O. Box 482  
Laupahoehoe, HI 96764



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**To:** CPH Testimony  
**Cc:** ninoleshon@yahoo.com  
**Subject:** Submitted testimony for SB272 on Feb 28, 2017 09:30AM

**SB272**

Submitted on: 2/25/2017

Testimony for CPH/WAM on Feb 28, 2017 09:30AM in Conference Room 229

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Shon Magsalin	Individual	Support	No

Comments: I recently retired as a nursing supervisor at Hilo Medical Center. I have seen cases of rat lung worm disease, at that time, it was a mystery illness. With these funding we can educate the community, learn more about this disease, and thus prevent it from happening to our people and maybe other regions in this country. I totally support!!

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**Sent:** Saturday, February 25, 2017 10:25 AM  
**To:** CPH Testimony  
**Cc:** nancybradwell@gmail.com  
**Subject:** Submitted testimony for SB272 on Feb 28, 2017 09:30AM

**SB272**

Submitted on: 2/25/2017

Testimony for CPH/WAM on Feb 28, 2017 09:30AM in Conference Room 229

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Nancy Bradwell	Individual	Comments Only	No

Comments: Aloha! Please take this rat lung disease seriously! I urge your support of this bill! Mahalo

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Submitted on: 2/25/2017

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<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Anne Olson	Individual	Support	No

Comments:

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**To:** CPH Testimony  
**Cc:** kawehi22@hawaii.edu  
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Submitted on: 2/24/2017

Testimony for CPH/WAM on Feb 28, 2017 09:30AM in Conference Room 229

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Kawehi Lopez	Individual	Support	No

Comments:

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**Cc:** pdolnick@yahoo.com  
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Submitted on: 2/25/2017

Testimony for CPH/WAM on Feb 28, 2017 09:30AM in Conference Room 229

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Paul Dolnick	Individual	Support	No

Comments: Ms. Jarvi's research is critical to better understanding the issues surrounding the devastating effects of rat lung worm disease. This disease has found its way to the U.S. mainland and Ms. Jarvi is the prime mover in establishing proper protocols, education and more. Please support her research efforts which are substantial.

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**Sent:** Monday, February 27, 2017 9:33 AM  
**To:** CPH Testimony  
**Cc:** lydibernal@gmail.com  
**Subject:** Submitted testimony for SB272 on Feb 28, 2017 09:30AM

**SB272**

Submitted on: 2/27/2017

Testimony for CPH/WAM on Feb 28, 2017 09:30AM in Conference Room 229

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Lydi Morgan Bernal	Individual	Support	No

Comments: Aloha Kakou Thank you very much for hearing this bill. I am writing in strong support of SB272, SD1, Relating to Rat Lungworm Disease. I have THREE friends who contracted Rat Lungworm Disease (RLWD) within the past 1.5 years, all ages 30-40 years old. Their lives were almost completely destroyed by this disease and they now live with serious physical disabilities because of it. Two friends were a husband and wife couple living in Hilo who contracted RLWD from an under-washed head of lettuce purchased from Hilo farmers market. Another friend lives on Maui and contracted RLWD from a salad eaten at a restaurant. How did this happen? UNINFORMED food producers, food service workers, consumers, and health care providers. It's time for Hawaii to shine the light on this issue so that there are ZERO cases going forward. Please pass this bill to enable the ERADICATION of RLWD. Thank you very much!

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Seri Niimi-Burch  
44-2610 Kalopa Mauka Road  
Honoka'a, HI 96727  
[sniimiburch@gmail.com](mailto:sniimiburch@gmail.com)

Testimony for the House Committee on Commerce, Consumer Protection and Health  
House Committee on Ways and Means  
February 28<sup>th</sup>, 2017 at 9:30am

**SB272, SD1: Relating to Rat Lungworm Disease**

I, Seri Niimi-Burch, resident of Kalopa, Hawai'i Island strongly support SB272, SD1.

Rat Lungworm Disease is in critical need of funding, research, control, monitoring and educational outreach. Please pass this bill so that there are NO MORE cases of this debilitating and devastating disease in the future.

Thank you,

Seri Niimi-Burch