

HB 3425 HD2

LINDA LINGLE
Governor



SANDRA LEE KUNIMOTO
Chairperson, Board of Agriculture

DUANE K. OKAMOTO
Deputy to the Chairperson

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 South King Street
Honolulu, Hawaii 96814-2512

LATE

TESTIMONY OF SANDRA LEE KUNIMOTO
CHAIRPERSON, BOARD OF AGRICULTURE

BEFORE THE SENATE COMMITTEE ON AGRICULTURE AND HAWAIIAN AFFAIRS
TUESDAY, MARCH 11, 2008
2:45 P.M.
ROOM 224

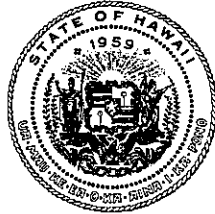
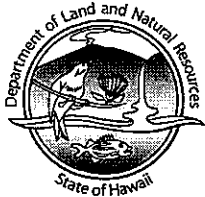
HOUSE BILL NO. 3425, H.D.2
RELATING TO TARO

Chairperson Tokuda and Members of the Committee:

Thank you for the opportunity to testify on House Bill No. 3425, H.D.2. The purpose of this bill is to provide funding for statewide taro research that focuses on the apple snail problem. We support the intent of the bill; however, we have concerns about the possible adverse budgetary impact that this bill may have on the Executive Supplemental Budget request.

S.C.R. 206 requested the department to work with taro farmers and others to develop a taro security and purity research program. The findings from the discussions support initiatives by the taro industry to find solutions to pest control problems. The most serious threat to wetland taro production in Hawaii is the apple snail with no pesticide currently approved for use for the control of the pest. Growers have observed that a by-product of used vegetable oil processed for diesel fuel (i.e. biodiesel) has efficacy for control of the snail in taro lo'i. The by-product material appears to be a botanical soap. The use of botanical soaps for apple snail control is being tested in the Far East. Also showing some promise are changes in cultural practices, including the use of a fallow period with a cover crop to rid taro lo'i of snails estivating (i.e., hibernating) in moist soil. The department is supportive of grass roots initiatives in the taro industry to find solutions to its pest problems.

LINDA LINGLE
GOVERNOR OF HAWAII



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

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KEN C. KAWAHARA
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LAND
STATE PARKS

**TESTIMONY OF THE CHAIRPERSON
OF THE BOARD OF LAND AND NATURAL RESOURCES**

on House Bill 3425, House Draft 2 – RELATING TO TARO

**BEFORE THE SENATE COMMITTEE ON
AGRICULTURE AND HAWAIIAN AFFAIRS**

March 11, 2008

House Bill 3425, House Draft 2 provides an unspecified amount of funds for taro research, laboratory costs, and outreach for the control of the invasive apple snail to the Department of Agriculture. The Department of Land and Natural Resources (Department) supports the intent of this measure and acknowledges the need for control of apple snails, but has concerns with the budgetary implications this bill may have on the Executive Supplemental Budget.

Unfortunately, there are large populations of apple snails on all of the main Hawaiian Islands. The Department supports the taro growers with their efforts to control apple snails statewide and because eradication is not currently feasible, agrees that an approach to control and contain this pest is the most appropriate. The Department supports a coordinated approach with the Department of Agriculture identified as the agency partner in these efforts, to provide an integrated statewide approach and an element of peer review and assistance with appropriate oversight and accountability.



HB3425, HD 2, RELATING TO TARO
Senate Committee on Agriculture and Hawaiian Affairs

March 11, 2008

2:45 p.m.

Room: 224

The Office of Hawaiian Affairs (OHA) **SUPPORTS** H.B. 3425, H.D. 2, **with amendments**. As currently written, H.B. 3425, H.D. 2, would appropriate a yet-to-be-determined sum of money from the state General Fund for the 2008-2009 Fiscal Year for statewide apple snail research. The Department of Agriculture would administer the funds for this research.

Apple snails - an alien, invasive species - are devastating the kalo industry in Hawai'i, with a recent report claiming that the snail is responsible for up to a quarter of crop losses in kalo in recent years. Kalo is a sacred plant in Hawaiian culture, regarded as the elder brother of Native Hawaiians; and poi, made from the corm of kalo, serves as the staple food of the traditional Hawaiian diet. Finding a way to control apple snails would have far reaching impacts in improving both Hawai'i's taro industry and the well being of Native Hawaiian culture.

We request that this bill include an amendment that would require the Department of Agriculture to consult with Native Hawaiians and taro farmers when the agency determines which apple snail research projects to fund. OHA believes that these stakeholders need to have a say in this very important discussion, particularly the taro farmers who are the ones that will be most impacted by this work. Taro farmers throughout the state have been working to find apple snail solutions, and they would be able to provide the best advice on which research projects may hold the most potential for success.

OHA requests to be a representative of the Native Hawaiian community for this project. The Hawai'i Revised Statutes (HRS) mandates that OHA "[s]erve as the principal public agency in the State of Hawaii responsible for the

performance, development, and coordination of programs and activities relating to native Hawaiians and Hawaiians; . . . and [t]o assess the policies and practices of other agencies impacting on native Hawaiians and Hawaiians, and conducting advocacy efforts for native Hawaiians and Hawaiians." (HRS § 10-3)

OHA urges the Committee to PASS H.B. 3425. H.D. 2, with amendments. Thank you for the opportunity to testify.

**HAWAII FARM BUREAU FEDERATION
2343 ROSE STREET
HONOLULU, HI 96819**

MARCH 11, 2008

HEARING BEFORE THE
SENATE COMMITTEE ON AGRICULTURE & HAWAIIAN AFFAIRS

TESTIMONY ON HB 3425, HD 2
RELATING TO TARO

Chairs Tokuda and committee members:

My name is Alan Takemoto, Executive Director, of the Hawaii Farm Bureau Federation, which is the largest non-profit general agriculture organization representing approximately 1,600 farm and ranch family members statewide.

The Hawaii Farm Bureau Federation supports HB 3425, HD 2, which appropriates funds for statewide taro research that focuses on the apple snail problem. This measure is aimed to assist taro farmers to increase their production and viability. The apple snails have devastated the taro industry for years and have caused millions of dollars of lost revenues. Farm Bureau supports this effort to improve the taro farmer's ability to not only sustain themselves but also to expand and improve their long term success.

We urge this committee to approve the passage of this measure.

Thank you.



The Nature Conservancy of Hawai'i
923 Nu'uuanu Avenue
Honolulu, Hawai'i 96817

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Fax (808) 545-2019

nature.org/hawaii

Testimony of The Nature Conservancy of Hawai'i
Regarding H.B. 3425 HD 2 Relating to Taro
Senate Committee on Agriculture & Hawaiian Affairs
Tuesday, March 11, 2008, 2:45PM, Room 224

The Nature Conservancy of Hawai'i is a private non-profit conservation organization dedicated to the preservation of Hawai'i's native plants, animals, and ecosystems. The Conservancy has helped to protect nearly 200,000 acres of natural lands for rare and endangered native species in Hawai'i. Today, we actively manage more than 32,000 acres in 11 nature preserves on O'ahu, Maui, Hawai'i, Moloka'i, Lāna'i, and Kaua'i and also work closely with government agencies and private landowners on cooperative land and marine management projects.

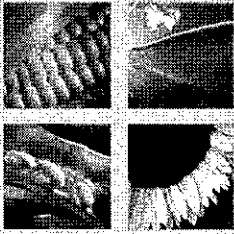
The Nature Conservancy of Hawai'i supports the use of general fund revenue to address invasive species issues, including research and control for devastating pests like apple snails.

However, we hope that the necessarily strong response to apple snails will not prevent the State and its partners from also devoting appropriate attention to other pests that have become established in Hawai'i. We hope that in addition to this bill, you will also support continued funding in the State budget for the prevention, early detection, control, research, and education programs of the Hawai'i Invasive Species Council (HISC), and the State Departments of Agriculture, Health, and Land & Natural Resources.

In order to meet needs, the Legislature has found itself in the position of shifting existing general and special funds back and forth between various invasive species and conservation programs. In Fiscal Year 2007, this practice caused layoffs in the Island Invasive Species Committees and a hiatus in the Hawai'i Invasive Species Council's research grant program. Similarly, funds to support coqui frog control and some Hawai'i Invasive Species Council activities have been diverted from the DLNR's Natural Area Reserve Fund. This is an unsustainable practice that will soon put the important Watershed Partnership and other Hawaiian forest conservation programs at risk.

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Growing the Future of Worldwide Agriculture in Hawaii

Testimony by: Sarah Styan

HB 3425hd2, Taro

Senate AHW Committee

Tuesday, March 11, 2008

Room 224: 2:45 pm

LATE

Position: Support

Chair Tokuda and Members of the Senate AWH Committee:

My name is Sarah Styan. I am a Kauai resident, President of HCIA and research scientist of Pioneer Hi-Bred International, Waimea Research Station. The HCIA represents seed production and research facilities operating in Hawaii for nearly 40 years. The HCIA is comprised of five member companies that farm an estimated 8,000 acres on four islands, valued at \$97.6 million in operating budget (2006/2007 HASS). We are proud members of Hawaii's diversified agriculture and life sciences industries.

Appreciation is expressed for this and other taro measures introduced this year. While HCIA member companies do not grow taro, nor do we plan to grow taro, we have in the past, and continue to support the preservation and protection of taro in Hawaii. As testified in other sessions, HCIA respects the cultural significance of taro, and supports the Hawaiian community's discussion of research and development for taro.

As pointed out in the bill, the preliminary SCR 206 report and its discussions with the Hawaiian community states that the apple snail is of greatest concern to taro farmers. As such, we support this measure.

We support this as it will lead to the sustainability of the taro industry, and help with successful production of agricultural lands. I can be reached at 808-338-8300 ext. 113 if there are any questions.

Thank you for the opportunity to present testimony.

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The Senate
Twenty-Fourth Legislature
Regular Session of 2008

COMMITTEE ON AGRICULTURE and HAWAIIAN AFFAIRS

Hearing
Thursday, March 11, 2008
2:45 p.m.

Testimony by: Ralph C. Boyea, Legislative Advocate, Hawai'i County Council

Testimony in favor of HB 3425, HD2 RELATING TO TARO

Chairperson Tokuda
Vice Chair English
Honored Senators,

On behalf of the Hawai'i County Council, I ask that you to pass House Bill 3425, HD2. House Bill 3425 provides a grant for taro research, laboratory costs, and outreach for the control of the invasive apple snail.

Taro farmers on the island of Hawaii are united in their desire to control the apple snails. Representatives of the taro farmers have made it clear that they will appreciate any assistance the State Legislature can provide in controlling this serious threat to the taro industry.

The Hawai'i County Council is very supportive of any efforts by the State Legislature to control apple snails and other invasive species. Any efforts that the State can make to mitigate and control the apple snails will be greatly appreciated.

We ask that you amend HB 3425, HD2 by changing the effective date from 7/1/2020 to 7/1/2008.

We urge you to pass HB3425, HD2 with an effective date of 7/1/2008.

testimony

From: Robert Cowie [cowie@hawaii.edu]
Sent: Monday, March 10, 2008 9:47 AM
To: testimony
Subject: Support for S.B. No. 2518, Relating to Taro

SENATOR JILL TOKUDA, CHAIR
AGRICULTURE AND HAWAIIAN AFFAIRS COMMITTEE

From: Robert H. Cowie, Ph.D.

Tuesday, March 11, 2008, 2:45 pm, conference room 224

Support of SB 2518, Relating to Taro

I am a University of Hawaii researcher. This testimony is my own personal testimony and does not necessarily reflect the views of the University of Hawaii, the Pacific Biosciences Research Center, or the Center for Conservation Research and Training. I support S.B. No. 2518, Relating to Taro, which would provide support for development of new measures for controlling pestiferous and highly invasive apple snails in wetland taro in Hawaii.

I am considered one of the world experts on these snails, which have become serious pests of taro in Hawaii. I have worked extensively on these invasive species in Hawaii, where I have documented their rapid spread into both taro and natural wetland areas throughout much of the state. I have also worked in Asia, where the snails have become major rice pests, as well as in their native South America. This research has been published widely.

No efficient and effective control methods have yet been developed, either in Hawaii or in Asia. Current measures primarily involve laborious and back-breaking hand-picking of the snails from infested lo'i or paddies, combined with biological control by ducks, which is not feasible in certain areas (e.g., Hanalei National Wildlife Refuge), and, at least in Asia, use of pesticides that are not permitted in Hawaii, may be dangerous to human health, and may have unwanted environmental impacts. Crop yield losses are high.

Development of environmentally friendly management options that do not impact human health is a crucial need in maintaining the viability of wetland taro farming in Hawaii. The effort to be implemented if this bill is passed is a valuable step towards this goal. I support passage of S.B. No. 2518. Thank you for this opportunity to testify.

Robert H. Cowie, Ph.D.
Research Professor

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LATE

TO: Senator Jill Tokuda, Chair
Senate Agriculture and Hawaiian Affairs Committee

FROM: Penny Levin, Executive Director
'E kūpaku ka 'āina –
The Hawai'i Land Restoration Institute



E KŪPAKU KA 'ĀINA
THE HAWAII LAND RESTORATION INSTITUTE

Bringing severely degraded lands back...to those of ecological health and abundance

DATE: Tuesday, March 11, 2008
(Submitted by email)

Aloha honorable Chair and Committee members;

I am testifying, as Executive Director of 'E kūpaku ka 'āina, in strong support of HB3425 which requests funding for farmer-based apple snail control research.

I also recommend amendments to HB3425 to restore the intent of the bill and the date by which it becomes effective (see pg 2-3)

The apple snail, *Pomacea canaliculata*, has been a major pest to taro farmers for 23 years. In recent years, it has consumed 18-25 % of annual harvests and makes a significant impact on huli (taro tops) survival at planting. The snail has increased the labor required to bring a crop to harvest by an exhausting 50%.

This voracious pest is on the list of the *100 Worst Global Invasive Species*. It is a major threat in more than 18 countries worldwide. The snail has infested taro patches, wetlands, streams, estuaries, ponds, springs, ditches and reservoirs on every island except Molokai'i and Kaho'olawe. Today, there are few taro growing areas that are snail-free.

Approximately 11,000 acres of wetlands and water bodies are at risk of or already infested with the snail; **only 5% of those lands are taro farming lands** - the rest are under private, state and federal jurisdiction. This is not just a "taro farmer problem."

The snail is a known disease vector for rat lung worm and leptospirosis, making control of this pest a health concern as well. The presence of large populations of snails has been observed to draw rats and mongoose to taro patches to feed on them, a further threat of disease and to endangered waterbirds.

And yet, taro farmers appear to be the sole advocates for bringing this pest under control. Neither DLNR, nor USFWS have initiated control efforts.

Finding a cost-effective and environmentally safe apple snail control is one of the highest priority issues for growers.

Four years ago, 'E kūpaku ka 'āina began doing the ground work to make a case for more sincere involvement by state agencies and increased resources towards control efforts. We collaborated on an economic impact study, a statewide survey to find how far the snail had

spread, researched everything we could find about the snail, interviewed farmers and researchers and agencies, and in 2006 produced a Statewide Strategic Control Plan for Apple Snails in Hawai'i. The plan outlines best management practices, and recommendations on needed policy changes, management efforts, funding, partnerships, and research priorities. (the report is online at <http://www.hear.org/articles/pdfs/applesnailcontrolplanlevin2006.pdf>)

What we also found was that in 23 years, less than \$400,000 had been spent on snail control efforts; primarily before 1996. Just enough to ensure failure.

Past funding for apple snail controls has gone almost exclusively to HARC and UH and has left taro farmers with no realistic or affordable solutions; and in one project may have encouraged further spread of the snail.

In 2006, we returned to state and federal agencies, working closely with the Coordinating Group on Alien Pest Species, and asked what could be done to help make the plan bear fruit? **To date, no concrete action towards this plan, nor a single dollar has been forthcoming from state agencies, leaving taro farmers no choice but to go directly to the legislature.**

Taro farmer's have spent 23 years observing the apple snail. Their own search for solutions have found promising alternatives based on realistic conditions. On Kaua'i, an organic cover crop rotation practice has been highly successful for one farming family. This is a practice that requires no lab testing as there are no chemical inputs, an important aspect for organic taro farmers. On Maui, taro farmers have partnered with Pacific Biodiesel in examination of an organic soil conditioner that appears to have positive effects on snail mortality.

Taro farmers have made a commitment to find alternatives and partnerships that will support future control efforts and Pacific Biodiesel has willingly offered the opportunity for taro farmers to create a self-sufficient apple snail control fund - a first for invasive species programs in the state of Hawai'i. While this fund may not fulfill its promise right away, it provides a new model for control efforts that includes partnerships with agencies, business and innovation. Most importantly, farmers become key players at the table rather than "cooperators."

Based on the above history, we respectfully request the following amendments be made to HB3425 to restore the true intent of the bill:

1. Last paragraph, Section 1: where it says "The purpose of this Act is to provide funding for statewide taro research that focuses specifically on ~~the apple snail problem.~~" **request a change to say** "*The purpose of this Act is to provide funding for statewide taro research that focuses specifically on promising taro-farmer based apple snail control research, as recommended in the Statewide Control Plan for this species, including laboratory testing and field monitoring of the organic soil conditioner described in this Plan.*"

2. Section 2: where it says "There is appropriated out of the general revenues of the State of Hawaii the sum of \$ or so much thereof as maybe necessary for fiscal year 2008-2009 for statewide taro research that focuses specifically on ~~the apple snail problem.~~" **request a**

change to read *"There is appropriated out of the general revenues of the State of Hawaii the sum of \$350,000 or so much thereof as may be necessary for fiscal year 2008-2009 for statewide taro research that focuses specifically on farmer-based apple snail control research and practice."*

3. Section 2 last line: where it says "The sum appropriated shall be expended by the department of agriculture for the purposes of this Act." **request a change to read** *"The sum appropriated shall be expended by the department of agriculture in consultation with 'Onipa'a Nā Hui Kalo and the Office of Hawaiian Affairs, for the purposes of this Act."*

4. Restore the date of implementation from ~~2020~~ to 2008.

To answer specific questions regarding the budget request:

1. *Why a minimum of \$350,000 for this work?*

The primary portion of the budget on this request would fund the costs of critical laboratory tests to assess a promising organic soil compound that suggests good apple snail control properties. These tests will provide taro farmers and agencies with the information necessary to determine both efficacy and environmental safety.

The recommended tests (EPA Endangered and Threatened Species Effects Determinations 2004), include:

- LD50 tests on all components of the compound (half life of active ingredients)
- Freshwater and soil degradation –bench tests (how long does it take for the compound to break down)
- EPA approved substitute fauna impacts (to determine risk to native species).
- Soil and water portability (how fast does the compound move through soil and water); and
- Baseline soil and taro plant sampling and monitoring throughout (to determine soil and plant retention over time).
- Snail mortality and field response.

These tests are expensive; the LD50 tests alone have an estimated cost of \$30-\$50,000. The additional tests require regular sampling and testing throughout the course of a year; bench tests are estimated at \$50-65,000.

'E kūpaku ka 'āina also notes that in the many years that researchers (HARC/UH) have been using farmers' fields, taro plants, and labor for their own research, farmers have never been compensated for their contributions, despite the fact that after a whole year's labor the crop may have been rendered unsaleable by the research trials. We feel strongly that taro farmers should be compensated not only for huli and crop commitments, the use of farm equipment and fuel, but also the extensive amount of time they give to growing the taro in monitoring plots.

Without these tests, we will not be able to meet taro farmers own requirements for evaluating the safety and validity of the compound – and **without proper funding we can not gather that information in a timely fashion.**

➤ A minimum of \$50,000 would be allocated toward documentation of other promising and successful snail control and prevention practices, using video, workshops, and other mechanisms to facilitate information exchange within the taro farming community.

2. *Will the work benefit taro farmers statewide?* Yes, every taro farmer with apple snail problems statewide will benefit from the results of the research.

It is important to note, that *based on the recommendation of state agencies*, including DLNR and the Department of Health, existing laws pertaining to use of plant or animal controls in freshwater bodies, *and using the precautionary principle* (that something is not safe for the field until proven so in the lab), field trials should not be conducted at new sites until evidence is available that any proposed chemical controls (whether organic or not) are environmentally safe. Given proper funding, such evidence could be gathering during the first year and field trials on each island where snails are present would be the appropriate next step.

3. *Are there existing controls for the snail?* Yes, but most are inefficient, labor and time intensive or inaccessible due to costs, availability of resources, or agency limitations.

The primary controls used today include hand picking, ducks and dry-down periods which force the snail underground. Hand picking is exhausting and never ending. Dry-downs increase weed encroachment into fields tremendously and can impact the quality of the corms. Ducks, in combination with the first two practices significantly reduce overall labor and increase snail control. However; ducks are not readily available to most farmers. In places such as Hanalei, taro farmers can not use domestic ducks due to the presence of native koloa (Hawaiian duck). Their only option is hand picking. While that may be appropriate in a quarter acre patch; it becomes a full time job, in addition to farming the taro, for larger growers. This research has the potential to address this difficult situation and assist wetland managers in reducing snail populations outside taro-growing areas.

Mahalo for this opportunity to testify. E kūpaku ka 'āina strongly supports bill HB3425.

Penny Levin, Executive Director
E kūpaku ka 'āina – The Hawai'i Land Restoration Institute

E kūpaku ka 'āina 224 Ainahou Place, Wailuku, Hawai'i 96793. Tel: 285-3947 (c) Email: pennysfh@hawaii.rr.com

Snail Facts

- A snail matures in 2-3 months and proceeds to lay from 4,000-8,000 eggs per year for up to an estimated 5-6 years. The eggs hatch in under a month and are so tiny they almost can't be seen. It breaths both in water and on land and can hibernate for months in dry mud.
- A taro patch (10-12 months of work) with high infestations can be consumed in a matter of days. They are non-discriminatory in their consumption of vegetation but prefer taro in Hawai'i.
- The snail poses as serious human health risk. It is a vector for rat lung worm and leptospirosis. On Kauai, it is present in at least one and possibly two reservoirs. The presence of snails draws rats and mongoose who feed on them, a further threat of disease and to endangered waterbirds.
- The snails primary mode of dispersal between ahupua'a has been human transport; within an ahupua'a downhill travel and some upstream movement is self-propelled.
- Once the snail gets into fallow taro areas or adjacent wetlands, they are currently almost impossible to remove. These types of sites are a constant source of reinfestation to active taro patches and wetlands.
- The traditional Hawaiian taro varieties, many of which are so rare they could be considered endangered species, are at risk as well. Growing them in infested areas means extra work to control snails and extra risk of losing rare cultivars.

Snail Control Research Facts

An estimated 22 snail control methods have been tested in Hawai'i or overseas, including chemical and organic practices, baiting and trapping, barriers, fallow periods, temperature changes, electroshock treatment, cover crops, tillage, trenching and mounding of fields, hand-picking, biocontrol, ducks, enforcement, outreach education and pest-for-profit programs.

What has been evaluated in the last decade by agencies and farmers?

HARC Papaya extract, neem, mugwort and yucca compounds, and ferric iron. Poor or inconsistent efficacy rates, expensive application costs (neem). Unknown impacts to crop quality.

DOA Copper sulfate. Moderate efficacy; environmental concerns for taro growers. Impacted crop quality.

UH Pest-for-profit program under UH SEAGRANT. Only worked when funding was available and may have caused further spread of the snail. Unrealistic economic, consumer demand and control capability projections.

Taro farmers Ducks, dry-downs, fallow periods, traps, cover crops, tillage, barriers. Ducks are highly effective and significantly reduce labor when combined with other practices but problematic for DLNR and USFWS. Long term fallow (2-3yrs) can eliminate snails but alternate lands to continue farming are often unavailable. Cover crop rotations are highly effective.



KAUA'I TARO GROWERS ASSOCIATION

LATE

**Testimony of Rodney Haraguchi
President
Kauai Taro Growers Association**

**Committee on Agriculture and Hawaiian Affairs
Senator Jill N. Tokuda, Chair
Senator J. Kalani English, Vice Chair**

**Tuesday, March 11, 2008
2:45 PM Conference Room 224**

**Support of HB3425, HD2
Relating to Taro**

Chair Senator Jill N. Tokuda and Vice Chair Senator J. Kalani English and members of the committee:

On behalf of the members of the Kauai Taro Growers Association (KTGA), mahalo for the opportunity to voice our support for HB3425, HD2. As mentioned in this bill, KTGA taro farmers also support the taro security and research program initiated by S.C.R. No. 206, to ensure that taro can be saved and protected from pests and diseases.

This bill effective 7/1/2020 date was a concern to many farmers, however, we received the following explanation that Committee Chairs will sometimes defect a bill by putting in an effective date far into the future to make sure they have one final look at the bill before it passes out of the Legislature. In our case, it was probably done because of the appropriation included. It was explained that by law, a bill containing an appropriation is not supposed to pass until the main budget for the State passes, so the 2020 date was put in as a safeguard.

We encourage support of this bill through the rest of the legislative process, so that the blank dollar amount will be filled in with an appropriate amount and the effective date changed to fiscal year 2008-2009. We understand the budget limits and the many pressing issues, however, we have endured 23 years and time is of the essence for sustaining the taro industry.

Based on the analysis funded by DLNR, the farmers need an appropriation of funds to continue some of the research that has been conducted and expanded upon as well as finding a permanent solution that farmers statewide can apply.

Because some farmers are located on the U.S. Fish and Wildlife Refuges or areas that have added protections for endangered or threatened birds, many of the farmers are not able to utilize certain applications or utilize the Cayuga or Peking ducks that are helping other farmers. The only means for these farmers are picking up the snails by hand which increases the labor costs at the same time postponing other maintenance issues. There have been trials done by CTAHR and HARC using a papaya extract and neem solutions which looked promising, however, the costs are prohibitive for farmers on a large scale application. There could possibly be ways to subsidize these costs to eradicate the snails completely or finding ways that would allow all farmers to utilize the ducks and funding other promising alternatives.

My name is Issac Kanoa and I have been a taro farmer all my life, with my father & mother & brothers & sister. We farm six acres with farmers as our neighbors all around in Keanae. We grow for leaf and corm. We have lost in 23 years over 200 ducks because of dogs.

The apple snails are like a carpet in the lo'i. One cluster of eggs is more than 200 snails.

In 30 days they grow more than a 1/4 inch in diameter. The snails in lo'i that are fallow and overgrown with grass the ducks can not get them.

Using this soil conditioner, if we found it was environmentally safe, would save us so much time and money. It would save me time/money feeding, keeping an eye on them morning to night, kids chasing the ducks and all. Trying to find a solution that would be easy for the farmers and would work is so important.

To: Senator Jill Tokuda, Chair
Senate Committee on Agriculture
and Hawaiian Affairs

RE: HB3425
11 March 2008

FROM: Mr. Issac Kanoa
Keana'e, Maui

IN STRONG SUPPORT

LATE

The soil conditioner would also help the farmers control the snails and be good for the plants.

I strongly support the funding of this bill

Issac Kanoa

March 10, 2008

To: Committee on Agriculture and Hawaiian Affairs

From: Shelley Muneoka

Re. HB 3425

This hearing is set for March 11, 2008 at 2:45 pm.

Aloha Chairperson Senator Tokuda, Vice Chair Senator English and members of the committee,

My name is Shelley Muneoka and I am a resident of Kane'ohe and a Graduate student at the UH School of Social Work. I am testifying in support of this bill (HB 3425) as a community member. Thinking on my childhood I vividly remember and cherish trips to the lo'i and want such experiences to be available to future generations.

Apple Snails have caused damage to kalo and kalo culture that we can only expect to increase exponentially if left unaddressed. Due to their young sexual maturity, long life spans and frequent and large hatchings as well as their voracious appetites, one can see how this problem has quickly gotten out of hand. These farmers need support of the community at large and this bill is a wonderful opportunity to offer such support. They are highly-motivated, committed, and invested in the outcomes of this research and should certainly be consulted in the direction that these prevention efforts will take. They can truly testify to the effects of these snails as well as the efficacy of potential and implemented interventions. This is not just a problem for taro growers however, all people who care about Hawai'i's ecosystems should support this measure.

As we become increasingly aware of the human effects on our natural environment, I feel it is our duty to support organic solutions to this serious problem as well as responsible practices when introducing any type of pest control. Too often in history we have not thought through our interventions and ended up with a bigger mess than when we started. Here is a chance to avoid such an outcome. Mahalo for this opportunity to testify.
Aloha.

Shelley Muneoka