

**TESTIMONY REC'D – ITEM C. 1 & 2**  
**BOA MEETING – JUNE 28, 2022**

**Nakamura, Gayle M**

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**From:** Deirdre Madrid <deirdre.madrid@gmail.com>  
**Sent:** Friday, June 24, 2022 4:30 PM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] Testimony for release of mosquitos

My name is Deirdre Madrid. I am writing to oppose the release of the mosquitos containing Wolbachia bacterium. We do not know the negative affects this may have on our ecosystem. There needs to be a full scope environmental impact study done that is available to the public for transparency.

**Nakamura, Gayle M**

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**From:** Faith Chase <faith@farmersvoicehawaii.com>  
**Sent:** Friday, June 24, 2022 3:31 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Testimony

Attention Hawai'i Dept. of Ag,

You must **NOT** Allow the Importation of Lab- Reared Strains of the Mosquito, *Culex quinquefasciatus* (Diptera: Culicidae) You must **NOT** field release.

I **OBJECT** to the importation and immediate Field Release of Lab-Reared Strains of the Mosquito, *Culex quinquefasciatus* (Diptera: Culicidae).

There have not been enough studies to conduct this absurd disruption to nature's balance. There has not been enough efforts to protect the birds in said danger. The methodology to deal with invasives has used an exorbitant amount of poisons in the fragile forests and it has created an imbalance that has brought the collective home to birds, bugs and insects. It has been unacceptable that the invasive species organizations continue to use excessive poisons that are killing cultural gathering areas by ruining the health of the tributaries.

There must be a re-approach to the way in which we care for our watersheds. There must be a boots on the ground approach. While this appears to a large workforce development issue, you as board members must make these important considerations as it counters the destructive approach of aerial ballistic herbicide use and repeated and increased spraying of dangerous applications. You must consider natural approaches, give this methodology a proof of concept period and then, only then, can you make sound decisions.

I appreciate your decision to defer this item for more discussion.

Sincerely,  
Faith Chase

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**Faith Chase**

Editor

**FARMERS VOICE HAWAII**

**Nakamura, Gayle M**

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**From:** Alicia <aameden@hawaii.rr.com>  
**Sent:** Friday, June 24, 2022 3:25 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Do not

Absolutely do NOT release mosquitoes on Hawaii! This is beyond insane!

Sent from my iPhone

## Nakamura, Gayle M

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**From:** Apurvo Sutherland <apurvolove@gmail.com>  
**Sent:** Friday, June 24, 2022 3:23 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Gmo mosquitos

to whom it may concern,  
i urge you to consider that there are no studies in this experimental proposal....it could likely have far reaching negative impact on people, animals and the environment.  
in fact i have never heard of it going well to introduce the things the government has introduced here for instance...mongoose decimated the bird population and made extinct all of the native ground nesting birds, and never took care of the rats since they are awake at day and mongoose at night

we have no more rose apples and so many other bad choices...

and this is the very worst of all! totally experimental without the proper studies of consequences!!!

please do what you were appointed for...to protect the people and animals and the environment...not do unconscionable experiments that has every possibility of being a travesty, and i believe you probably know that... please make your decision with a conscience and find any amount of human care you may have within to do the right thing for humanity and the aina..  
i pray you do the right thing....there's only one choice in that regard...

mahalo  
taryn sutherland

**Testimony of The Nature Conservancy  
Supporting Agenda Items IV.C.1 and 2 - Approving Proposal to Add Certain Mosquitoes to  
the List of Restricted Animals (Part A), and Allowing for Importation and Field Release of  
*Culex quinquefasciatus* Mosquitoes**

**Hawai'i State Board of Agriculture  
June 28, 2022, 9:00 AM  
Hale Waiolama Board Room  
1428 South King Street  
Honolulu, Hawai'i 96814-2512**

Aloha Chair Shimabukuro-Geiser and Members of the Board:

The Nature Conservancy (TNC) is a global non-profit organization dedicated to the preservation of the lands and waters upon which all life depends. TNC has helped protect more than 200,000 acres of natural lands in Hawai'i, including the Waikamoi Preserve on the slopes of Haleakalā, where three federally listed bird species still survive. Two of them are in imminent danger of extinction within the next six to ten years. There is even less time left for Kaua'i forest birds, one of which is predicted to be extinct in the wild within the next two years without immediate intervention.

TNC strongly supports (1) the proposed rule change to add the *Aedes aegypti*, *Aedes albopictus* and *Culex quinquefasciatus* (Cq) mosquitoes to the List of Restricted Animals (Part A), (2) subsequent approval of importation and field release of lab-reared strains of the Cq mosquito inoculated with strains of *Wolbachia* bacteria, by permit, for immediate field release to suppress wild populations of Cq, by the Hawai'i Department of Land and Natural Resources, and (3) establishing permit conditions for such actions. Cq mosquitoes, in particular, have been documented moving higher in elevation and is a vector for *Plasmodium relictum*, the parasite that causes avian malaria. The listing and approvals are critical steps to implement mosquito suppression activities that will offer our endangered forest birds a fighting chance against avian malaria, which threatens them with imminent extinction.

TNC and partners are collaborating on a project to control the spread of avian malaria involving the direct release of male *Aedes* and *Culex* mosquitos under an incompatible insect technique (IIT) integrated pest management program. IIT is not a genetic method and does not result in any genetically modified-organism (GMO). This approach is being safely used in 15 different countries, including the continental U.S., to suppress mosquito populations. *Wolbachia* is a very common bacteria in Hawai'i and worldwide.

Additionally, only male mosquitoes will be released while females are the mosquitoes who bite, so the released mosquitoes will not bite the birds (or humans) and cannot transfer the bacteria to any other species. Because the mosquitoes cannot successfully reproduce, it is a

**BOARD OF TRUSTEES**

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self-limiting process. If releases are stopped, changes in the mosquito population will be reversed.

Partners in Hawai'i's conservation community and beyond are working feverishly to stop the loss of our native forest birds. The proposed listing and approvals are essential steps towards suppressing invasive and destructive mosquitoes in Hawai'i's natural areas, for the benefit of Hawai'i's forests, people, and culture.

Mahalo for the opportunity to share our comments.

**Nakamura, Gayle M**

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**From:** Anna M Severson <annaseverson@hawaiiilife.com>  
**Sent:** Friday, June 24, 2022 3:10 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] testimony - Hawaii BOA action to add 3 mosquito species to list of restricted animals

Aloha Chairperson Shamabukuo-Geiser and fellow members of the committee,

I am writing to express **STRONG SUPPORT** for three of the recommended actions put forward by the Advisory Committee on Plants and Animals:

Review the southern house mosquitoes for future placement on the List of Restricted Animals (Part A), that will allow import by permit; and

If placement on the list is approved, allow: Importation of male Wolbachia-incompatible mosquitoes for release to suppress wild populations of southern house mosquitoes; and

Establish permit conditions for importation and release for field trials.

These actions are extremely important for halting the decline and extinction of our native birds, and will allow for the protection of our local families from countless mosquito borne diseases. These techniques have been available since the 1960s and have been used around the world to great effect, saving thousands of lives without the cost of non-target impacts such as pesticide based abatement.

Hawai'i had no mosquitoes until 1826, by using technologies like these we can save our native birds!

Mahalo nui

## Nakamura, Gayle M

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**From:** Celina <cmilikea@hotmail.com>  
**Sent:** Friday, June 24, 2022 3:08 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Do not release mosquitoes

I object to the release of mosquitoes modified by man. mosquitos injected with wolbachia bacterium which sterilizes the mosquito eggs. We need long-term studies that humans will not be harmed since mosquitoes are the only insect that give us diseases that will kill us.

Please do not release these mosquitoes.

In your gut you have to know this is wrong. There has been no public release or hearing or studies proving long term safety. No one knows this is happening. It appears shady, diabolical and deceitful to not more publicly announce this program and give the public more info and chance to object.

Just to state it clearly. I object to the release of these mosquitoes.

Celina Monge  
Hc2 box 6822  
Keaau HI 96749

8083336204.

**Nakamura, Gayle M**

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**From:** Caroline Thow <thow@hawaii.edu>  
**Sent:** Friday, June 24, 2022 3:07 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Testimony - Hawai'i Board of Agriculture Action on Proposal to Add Three Mosquito Species to List of Restricted Animals (Part A)

Aloha,

I am writing today to express strong support for the listing of three mosquito species on the list of restricted species.

This is a critical step towards ensuring our communities health and the conservation of our unique native wildlife, including endemic birds found no where else in the world. Allowing for the importation of male mosquitoes for use in the incompatible male technique provides a means to safely control invasive mosquito populations. This method of mosquito control which has been used for decades all across the world uses naturally occurring bacteria already found in Hawai'i, and does not require the application of pesticide or genetic modification.

Thank you for your time and support of this action. This is an important step for returning to a mosquito free Hawai'i, and ensuring our keiki can enjoy the beautiful native birds their ancestors had close relationships with. Without mosquito control, we will lose these cultural and biological jewels of the forest.

Mahalo,  
Cara Thow

Aloha Cara

## Nakamura, Gayle M

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**From:** Alexander Wang <axwang@hawaii.edu>  
**Sent:** Friday, June 24, 2022 3:05 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Letter supporting listing of mosquito species

To whom it may concern,

I strongly support the following:

- Review the southern house mosquitoes for future placement on the List of Restricted Animals, that will allow import by permit; and
- If placement on the list is approved, allow:
  - Importation of male *Wolbachia*-incompatible mosquitoes for release to suppress wild populations of southern house mosquitoes; and
  - Establish permit conditions for importation and release for field trials.

It is of vital importance that we take these steps to move forward with landscape level mosquito control. It is our kuleana as we are the ones that introduced *Culex quinquefasciatus* to the state of Hawaii in the first place facilitating the annihilation of so many of our dear and endemic forest bird species. Our Hawaiian honeycreepers are found nowhere else in the world and frankly mean more to me than you can know. It is literally my job to try and save these species, something I have dedicated my life to both professionally and personally. The 'ākohekohe is my favorite bird in the world and it faces imminent extinction because of climate change and a warming planet -also due to us humans(!) - which allows the mosquitoes to reach the last of their disease free high elevation refugia. We need decisive action and we need it now. *Wolbachia* mosquitoes are an important step in curbing this murderous onslaught to our native species from our culpability and I encourage you to not listen to the misinformation out there and approve this measure. *Wolbachia* is not GMO, but honestly even if it was, I would still be 100% on board in favor of this. It is time for us to stop being selfish and negligent and take progressive steps to make amends for the past and save our honeycreeper ohana. I am attaching a photo of an 'ākohekohe of Maui so you know what is at stake. They are precious, help them out.



Mahalo nui loa,  
Alex

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Alex Wang  
Wildlife Biologist IV  
Division of Forestry and Wildlife  
(808) 937-7924  
19 East Kawili Street  
Hilo, Hawaii 96720  
email: [axwang@hawaii.edu](mailto:axwang@hawaii.edu)

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**Nakamura, Gayle M**

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**From:** 8083336204@vzwpix.com  
**Sent:** Friday, June 24, 2022 2:59 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL]  
**Attachments:** text\_0.txt

I object to the release of mosquitoes modified by man. mosquitos injected wolbachia bacterium which sterilizes the mosquito eggs. We need long-term studies that humans will not be harmed since mosquitoes are the only insect that give us diseases that will kill us. Please do not release these mosquitoes.

## Nakamura, Gayle M

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**From:** Susan Amine <healthygut808@gmail.com>  
**Sent:** Friday, June 24, 2022 2:35 PM  
**To:** HDOA.PQ.TESTIMONY; HDOA.BOARD.TESTIMONY; Ho, Jonathan K  
**Subject:** [EXTERNAL] Against proposed release of mosquitoes with Wolbachia bacterium

To whom it may concern, I am very much against the release of these experimental mosquitoes. There are no long-term studies of the potential hazards to not only the environment, other wildlife, but to human life as well. This could be extremely dangerous for everyone on the planet. We are fine with the mosquitoes we have. They are very manageable without these! Do not use us as an experiment... please use extreme caution. Nature is perfect when untouched.

Aloha,  
Susan Amine  
Founding Wellness Partner  
Amare Global  
"The Mental Wellness Company"  
(808)554-9710  
[https://urldefense.com/v3/\\_\\_http://www.healthygut808.com\\_\\_;!!LIYSdFfckKA!zdy8ZqWbEafcQGYLifJoAADpcJ8-3U3OTEAl2exdww9HGSfU04BM8fY8LLU4gp\\_ndXZPKWRJYNy\\_nsRH2w4Tx\\_adswhcAirLcMQ\\$](https://urldefense.com/v3/__http://www.healthygut808.com__;!!LIYSdFfckKA!zdy8ZqWbEafcQGYLifJoAADpcJ8-3U3OTEAl2exdww9HGSfU04BM8fY8LLU4gp_ndXZPKWRJYNy_nsRH2w4Tx_adswhcAirLcMQ$)

**Nakamura, Gayle M**

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**From:** Margot Robinson <lifeinvolcano@gmail.com>  
**Sent:** Friday, June 24, 2022 2:08 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] June Board of Agriculture

BOARD OF AGRICULTURE,

I say NO!!!!!!!!!!!! until there is a full environmental impact study done. Freedom Action #1 needs more research.

Please think of the keki, our health, birds and animals. Don't play GOD...

Aloha,

Margot Robinson

**Nakamura, Gayle M**

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**From:** Noah Gomes <noahjgomes@gmail.com>  
**Sent:** Friday, June 24, 2022 2:05 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] "Testimony - Hawai'i Board of Agriculture Action on Proposal to Add Three Mosquito Species to List of Restricted Animals"

To Whom It May Concern,

This letter is testimony in support of the proposed actions in items IV.C.1 and IV.C.2 on the June 28, 2022.

As I'm sure you are already aware, Hawai'i is uniquely positioned as both a major center of biodiversity and a major center of extinction in the world. Additionally, historical industry and environmental negligence have led to severe loss of natural ecosystems.

More than two-thirds of Hawai'i's native birds are now extinct. The ecosystems that have supported human life here for more than a thousand years are on the verge of collapse. We are very late in taking action to correct these issues. **If action is not taken immediately we will see the extinction of numerous Hawaiian organisms within a decade or less.**

Mosquito-borne disease has been demonstrated as a significant factor in the decline of Hawai'i's native birds. Treatment of mosquitoes with *Wolbachia* bacteria has been shown to be safe and effective in tests and in practical demonstrations all over the world to control mosquito populations.

**Please consider approving the proposed action to add three Mosquito Species to the List of Restricted Animals.**

Thank you for your time,

Noah Gomes

## Nakamura, Gayle M

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**From:** Michelle Melendez <michelle@blossominerwellness.com>  
**Sent:** Friday, June 24, 2022 1:56 PM  
**To:** Millicent Cummings  
**Cc:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Re: Mosquito Release Testimony

Thanks for sharing! Looks great!

Michelle Melendez  
Fitness and Wellness Expert Since 1996  
Author Of The Best Selling and 4x Award Winning Book,  
*End Dieting Hell: How to find peace in your body and release the weight*  
Phone: 1.866.339.4438  
<https://blossominerwellness.com/>  
Order your copy of [End Dieting Hell Click Here](#)

On Fri, Jun 24, 2022 at 1:23 PM Millicent Cummings <[millicentium@hotmail.com](mailto:millicentium@hotmail.com)> wrote:  
To Hawai'i Department of Agriculture and all concerned;

What does it mean to be truly concerned about our Extinct and Endangered Hawaiian Birds when those who boast the claim don't even know apparently, how they became extinct or endangered in the first place? Was it not to a large measure, the result of yet another failed EXPERIMENT among an illustrious list of so many...The MONGOOSE? Would introducing an insect contaminated with a new strain of egg sterilizing Wolbachia Bacterium here in the Endangered Species Capital of the World be a sound idea for any reason?

Most rational, common-sense thinkers both with and without degrees on the subject would say absolutely not. Some would say that it would be the very height of arrogant, delusional and reckless endangerment. I would say that to experiment so recklessly would be to knowingly or naively facilitate bio-terrorism. The likelihood of a contaminated female mosquito biting or being ingested by humans or the endangered birds in question is probable and there is not one human study available regarding the consequences of being exposed to this egg killing bacterium!

To unleash untested flying needles that could wreak havoc on the immune systems of every living creature here is mind numbingly unconscionable. The insanity of this unsustainable, short-term band-aid experiment to address a dynamic problem requiring the inclusion of its actual causes, is truly stunning. Everyone participating in this unscientific proposal without even so much as a full scope Environmental Impact Statement, should be utterly ashamed of themselves. Hawai'i is not a petri dish. Aloha Aina,

Millicent Cummings  
PO Box 1093  
Hilo, HI 96721

**Nakamura, Gayle M**

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**From:** Margot Robinson <lifeinvolcano@gmail.com>  
**Sent:** Friday, June 24, 2022 1:52 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] FREEDOM ACTION #1

HDOA,

I say NO!!!!!!!!!!!! until there is a full environmental impact study done. Freedom Action #1 needs more research.

Please think of the keki, our health, birds and animals. Don't play GOD...

Aloha,

Margot Robinson

**Nakamura, Gayle M**

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**From:** Amara Karuna <amara@mindspring.com>  
**Sent:** Friday, June 24, 2022 1:46 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] No mosquito experiments

Do not release the altered mosquitoes without conducting a **FULL scope Environmental Impact Study** regarding this mosquito since there could be a substantial impact on public health for animals and birds. Also mosquitoes are important pollinators.

Thank you  
Amara Karuna  
Pahoa HI

**Nakamura, Gayle M**

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**From:** Denni Gaeth <snorkelgal@hawaii.rr.com>  
**Sent:** Friday, June 24, 2022 1:45 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] GMO Mosquito

Please, release the names and numbers of people responsible for any releasing of GMO Mosquitos!  
Mahalo,  
Denni Gaeth

Sent from my iPhone 11 Pro

Testimony to  
HDOA Plant and Animal Advisory Committee  
**In support of the Listing, Import, and Permit Conditions of three species of mosquitoes**  
Thursday, June 9, 2022

Aloha Members of the Plant and Animal Advisory Committee,

It is with a great sense of urgency that I write in **support** of the the listing, importation, and establishing permit conditions for field release of southern house mosquito (*Culex quinquefasciatus*), Asian tiger mosquito (*Aedes albopictus*), and yellow fever mosquito (*Aedes aegypti*). Avian malaria is the single most pressing threat to the persistence of native Hawaiian honeycreepers, and without the rapid implementation of southern house mosquito control techniques using *Wolbachia*-infected mosquitoes, threatened and endangered Hawaiian honeycreeper species will undoubtedly be lost to extinction in the decades to come. For the critically endangered 'akikiki and 'akeke'e on Kaua'i and the 'ākohekohe and kiwikiu on Maui, the time frames to extinction due to avian malaria are even shorter.

The actions requested by the Hawai'i Department of Land and Natural Resources and Hawai'i Department of Health are a key step towards saving our endangered forest birds using *Wolbachia*-inoculated mosquitoes that will function as mosquito "birth control." Once these species are on the Restricted Animals (Part A) List, the next step is being able to import the *Wolbachia*-inoculated mosquitoes, and then deploy them in the field according to the permit conditions established by the Board. With repeated mass releases of infected male mosquitoes in the wild, this landscape-level mosquito control method will suppress vector populations, greatly reducing avian malaria transmission in native bird communities at risk of disease, and allowing these endangered bird species to survive. This series of actions has repeatedly been shown to safely suppress mosquito numbers and reduce disease transmission in the wild in other locations. Therefore, it is crucial that DLNR be able to import the large number of male mosquitoes needed to successfully implement mosquito suppression in the forests of Hawai'i to protect our native birds.

I would like to highlight to the committee that using *Wolbachia*-infected mosquito releases to control disease-carrying mosquitoes in Hawaii is **both safe and would be effective**. Field trial releases of *Wolbachia*-transinfected *Aedes* and *Cx. quinquefasciatus* in other continental and oceanic island systems demonstrate the safety and efficacy of these methods. The proposed technique **does not modify the genes of mosquitoes or *Wolbachia***. It is similar process to taking anti-biotics then eating pro-biotics to replace the existing community of bacteria with a different community within your stomach.

We must address this conservation crisis before it is too late for this beloved group of culturally important Hawaiian birds found nowhere else in the world. I strongly **support** this request.

Mahalo for your time and consideration,



Katherine McClure, Ph.D.

Postdoctoral Researcher

University of Hawai'i at Hilo - Hawai'i Cooperative Studies Unit and

U.S. Geological Survey - Pacific Island Ecosystems Research Center

[kat.m.mcclure@gmail.com](mailto:kat.m.mcclure@gmail.com) / (831) 345-1217

**Nakamura, Gayle M**

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**From:** Jordis McEwen <jordismcewen@gmail.com>  
**Sent:** Friday, June 24, 2022 1:36 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Mosquito release

Just wanted to say that I think the planned release of 200M mosquitos into Hawaii who are transfected with Wolbachia is premature and there should be a **full-scope environmental impact statement completed beforehand. Please consider potential human health impacts before proceeding.**

Thank you  
Jordis McEwen  
808-333-2698

**Nakamura, Gayle M**

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**From:** Millicent Cummings <millicentium@hotmail.com>  
**Sent:** Friday, June 24, 2022 1:23 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Mosquito Release Testimony

To Hawai'i Department of Agriculture and all concerned;

What does it mean to be truly concerned about our Extinct and Endangered Hawaiian Birds when those who boast the claim don't even know apparently, how they became extinct or endangered in the first place? Was it not to a large measure, the result of yet another failed EXPERIMENT among an illustrious list of so many...The MONGOOSE? Would introducing an insect contaminated with a new strain of egg sterilizing Wolbachia Bacterium here in the Endangered Species Capital of the World be a sound idea for any reason?

Most rational, common-sense thinkers both with and without degrees on the subject would say absolutely not. Some would say that it would be the very height of arrogant, delusional and reckless endangerment. I would say that to experiment so recklessly would be to knowingly or naively facilitate bio-terrorism. The likelihood of a contaminated female mosquito biting or being ingested by humans or the endangered birds in question is probable and there is not one human study available regarding the consequences of being exposed to this egg killing bacterium!

To unleash untested flying needles that could wreak havoc on the immune systems of every living creature here is mind numbingly unconscionable. The insanity of this unsustainable, short-term band-aid experiment to address a dynamic problem requiring the inclusion of its actual causes, is truly stunning. Everyone participating in this unscientific proposal without even so much as a full scope Environmental Impact Statement, should be utterly ashamed of themselves. Hawai'i is not a petri dish. Aloha Aina,

Millicent Cummings  
PO Box 1093  
Hilo, HI 96721

**Nakamura, Gayle M**

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**From:** Tanya Suan <tanyamsuan@gmail.com>  
**Sent:** Friday, June 24, 2022 1:19 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Testimony - Hawai'i Board of Agriculture Action on Proposal to Add Three Mosquito Species to List of Restricted Animals

Aloha Chairperson Shimabukuro-Geiser and fellow members of the committee,

I am writing to express **STRONG SUPPORT** for three of the recommended actions put forward by the Advisory Committee on Plants and Animals:

Review the southern house mosquitoes for future placement on the List of Restricted Animals (Part A), that will allow import by permit; and

- If placement on the list is approved, allow:
  - Importation of male *Wolbachia*-incompatible mosquitoes for release to suppress wild populations of southern house mosquitoes; and
  - Establish permit conditions for importation and release for field trials.

These actions are extremely important for halting the decline and extinction of our native birds, and will allow for the protection of our local families from countless mosquito borne diseases. These techniques have been available since the 1960s and have been used around the world to great effect, saving thousands of lives without the cost of non-target impacts such as pesticide based abatement.

Hawai'i had no mosquitoes until 1826, by using technologies like these not only can we save our native birds from imminent extinction but we can also restore the quality of life of local families.

Mahalo, Tanya

Sent from my iPhone

**Nakamura, Gayle M**

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**From:** Jackie Bejo <bejojackie@gmail.com>  
**Sent:** Friday, June 24, 2022 1:10 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Invasive Species

We the people do not consent to releasing lab made mosquitoes into our Islands! You we will hold accountable and you all will be accountable! There is a demand for transparency and those taking bribes will be found out! Please acknowledge we the people do not consent and as a servant of the people you need to comply! Further action will be taken on this misuse of authority! Sincerely Jackie Bejo!

**Nakamura, Gayle M**

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**From:** Mike's Gmail <mpcarion@gmail.com>  
**Sent:** Friday, June 24, 2022 1:04 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Support of mosquito eradication

Please support the recommendations which will allow proactive measures to lead to the eradication of mosquitoes and help our critically endangered native birds!

Mahalo Nui Loa!

Michael Carion  
Sent from my iPhone

**Nakamura, Gayle M**

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**From:** Kristina Ammon <kihalani@gmail.com>  
**Sent:** Friday, June 24, 2022 1:01 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Proposed Introduction of Mosquitoes

To whom it may concern,

I am strongly opposed to the introduction of the proposed mosquito strain that includes vertical gene transfer. The possible negative side affects of gene alteration and unforeseen damage to a delicate ecosystem make it not worth the hoped for benefits.

Thank you for putting a stop to this proposal.

Kristina Ammon

(808) 895-8775

**Nakamura, Gayle M**

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**From:** Alice Abellanida <jesusnokaioi@msn.com>  
**Sent:** Friday, June 24, 2022 12:58 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] GMO Mosquitos

I am adamantly opposed to this piece of legislation! There are many ramifications of unknown long term effects. What if humans get bit? Do not pass this legislation. It is insane.

Mahalo,  
Alice Abellanida  
Waianae

Sent from my Verizon, Samsung Galaxy smartphone  
Get [Outlook for Android](#)

**Nakamura, Gayle M**

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**From:** Kaitlyn Peacock <kaitlynkjp97@icloud.com>  
**Sent:** Friday, June 24, 2022 12:06 PM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] Stop do not mosquitoes without long-term study!!!

Please do not release these male mosquitoes without long-term studies on human health and animals and the planet.  
You're playing God and mother nature and it's not right.!!!!

Sent from my iPhone

## Nakamura, Gayle M

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**From:** Davina <davinamar@rocketmail.com>  
**Sent:** Friday, June 24, 2022 12:26 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] STOP Wolbachia Bacterium injected mosquito

I, as a taxpayer, full time resident of Hawaii County, and concerned citizen, am telling you to STOP Wolbachia Bacterium injected mosquito from being released in Hawaii Nei.

The long term consequences are not known and I do not want me or my ohana to be an experiment.

Stop the nonsense now!

With Aloha,  
Donna Dufault  
Live Aloha  Love Now

**Nakamura, Gayle M**

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**From:** Meganj Wells <meganjwells77@gmail.com>  
**Sent:** Friday, June 24, 2022 11:59 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Stop your arrogance

When you cannot even blink your own eyes or pump your own heart it is ridiculous arrogance to believe you can improve in a divine design that was created to benefit EVERYTHING at the same time. Man's interference cannot make nature better. Observe that where man does not Interfere, nature is balanced and perfect. No GMO mosquitoes! Everything affects everything else because it is all connected. You are gambling with life itself.

**Nakamura, Gayle M**

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**From:** Keith Evans <kbemail@comcast.net>  
**Sent:** Friday, June 24, 2022 11:56 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Testimony - Hawai'i Board of Agriculture Action on Proposal to Add Three Mosquito Species to List of Restricted Animals

Aloha,

Re these three agenda items:

1. Review the southern house mosquitoes for future placement on the List of Restricted Animals, that will allow import by permit; and
2. If placement on the list is approved, allow:  
Importation of male Wolbachia-incompatible mosquitoes for release to suppress wild populations of Southern House Mosquitoes; and
3. Establish permit conditions for importation and release for field trials.

When I first hiked the Alaka'i Swamp trail in Kauai, native forest birds could be seen and heard everywhere. Now, the skies are empty and the air is silent. There has been a precipitous decline in the numbers of these unique birds, caused largely by the proliferation of avian-malaria carrying mosquitoes. Their last refuge has been the highest elevation forests where previously the mosquitos did not reach. However, now, with climate change, the mosquitoes are invading even this last refuge. Time is very short, for some of these birds it has already run out, for others there is very little time left. The Wolbachia mosquito solution has been proven elsewhere, has no negative impacts, and could dramatically and immediately improve the outlook for these precious birds. I therefore humbly beseech you to approve these actions – the birds do not have time to lose.

Mahalo,  
Keith Evans  
Santa Rosa, CA

## Nakamura, Gayle M

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**From:** Megan Isaac <meganisaac96720@gmail.com>  
**Sent:** Friday, June 24, 2022 11:51 AM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] STOP THE BIO- ENGINEERED MOSQUITO RELEASE.

Aloha to HDOA Board:

This is a correction to my previous email that was (in error) titled: 'STOP THE GEO ENGINEERED MOSQUITO RELEASE. ' Clearly that was an error as I am aware of the difference.

Please accept my corrected testimony:

Dear Department of Ag Board:

**THE VERY DEFINITION OF INSANITY SURELY IS THIS :  
TAKING HUGE RISKS WITHOUT KNOWING MORE OF THE POTENTIAL HARM FOR GENERATIONS  
TO COME.**

Hopefully you all are noticing that you aren't sleeping as well as you used to.

Respectfully and out of concern for you and for everyone in Hawaii I ask you :  
'why would you be sleeping well ?'

Introduction of an experimentally inoculated insect with a new strain of bacteria onto our 'aina ? This represents insanity.

This is a project that creates a budget line item. It surely must be yet another example of 'profits before common sense. "

There have been experiments in the past that have zero gone well for either people or species in these islands. This represents yet another huge risk that the Department of Health and Department of Agriculture is taking by considering such a novel and under-documented experiment.

Please take heed that it must be stopped and a very public inquiry must be initiated.

I just learned about this experiment recently and was made aware of the urgency to submit testimony by today. Most people I have spoken to about this remain unaware.

I'm aware that locally here on our Island some people have been convinced of the value of this measure to save the 'Iwi bird. It must be pointed out however that suggestion of a benefit in this way represents only a part of the information needed for an informed public decision since there is no long term safety data available .

The low call numbers Mr Jonathan Ho received a week or two ago is categorically NOT proof of massive amounts of support from the public. Rather, this is proof that this experiment is being proposed without sufficient public oversight and without sufficient consideration of safety. It is not sufficiently 'public knowledge' that this is proposed.

I reference this article about the Oxitec experimental release programs:

<https://conservativeplaylist.com/2022/05/28/billions-of-ge-mosquitoes-released-health-risks-ignored/>

Here are just 2 of the talking points that demonstrate how reckless Oxitec was in breaking known safety protocols in the Florida and California release of the GMO mosquitoes.

- Oxitec's trial does not reveal whether the release of GE mosquitoes suppresses wild mosquito populations, or, importantly, whether it reduces transmission of diseases carried by *A. aegypti*
- The health and environmental effects of this reckless experiment remain completely unknown, and the EPA continues to prioritize corporate interests over public health

Further, a third talking point is that the 'safety data findings' don't meet rigorous standards appropriate for such a clear and apparent risk:

"the pilot study does not reveal whether the release of GE mosquitoes suppresses wild mosquito populations or, importantly, whether it reduces transmission of diseases carried by *A. aegypti*. Thomas Scott, an entomologist at the University of California, Davis, made an interesting point when he told Nature, "They're not going to be able to do a trial to show that it actually has a public-health impact. There's not enough *Aedes*-transmitted viral infection in the Florida Keys."22"

I would add that the same lack of infection in Hawaii's human population of Denge, Zika etc will also make the findings of 'success' inconclusive. With no way to prove 'success' the unknown safety risks are even more unacceptable.

There are many reasons we have to oppose the release of GMO mosquitoes here in Hawaii. You and the entire State of Hawaii Government must bear liability should anything go wrong.

Please Kokua. Whenever the word 'reckless' is appearing in the review literature about an experiment conducted elsewhere there are grounds for an immediate halt to any proposal to halt it here in Hawaii.

You surely want your family to be proud of you and for your names to be on the right side of history? Please register that there has not been sufficient consideration of the risk and that this must NOT proceed.

I will be forwarding this email to members of my community and to our elected representatives. If feel that it is both important and urgent that they are made aware of the risks of this experiment.

Aloha,

Megan Isaac Magdalene  
Hilo Resident.  
808 6408263  
140A Kilauea Avenue  
Hilo HAWAII 96720

## Nakamura, Gayle M

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**From:** Kenneth kaneshiro <kykanesh@hawaii.edu>  
**Sent:** Friday, June 24, 2022 11:51 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] re: Testimony - Hawai'i Board of Agriculture Action on Proposal to Add Three Mosquito Species to List of Restricted Animals

Aloha Members of the Board of Agriculture,

My name is Ken Kaneshiro and I serve as Program Director of the Center for Conservation Research and Training (CCRT) at the University of Hawaii at Manoa. However, I am presenting testimony as a private individual and my comments do not represent the views of the University of Hawaii.

First, while I am familiar with the use of Wolbachia as a potential tool for the control and the possible eradication of mosquito species that are vectors of animal and human diseases, I certainly do not claim to be an expert on Wolbachia. I do know that Wolbachia is a group of bacteria species that are naturally occurring primarily in invertebrates, especially insects including mosquitos. The proposed plan is to use Wolbachia essentially as a "birth control" technology that has already been used successfully and safely in a number of different countries as well in the continental U.S. While much of the discussion has focused on the use of the technology to control and eliminate mosquitos that transmit avian malaria which has resulted in the extinction of 50% of the native bird species of Hawaii, the technology also has tremendous potential for controlling mosquito species that transmit human diseases. It is truly exciting that these technologies are being proposed for implementation in Hawaii with the potential of serving as a model for application elsewhere globally where mosquito-transmitted diseases still kill more than a million people annually.

I am most familiar with a program that was implemented in Okinawa, Japan where two species of fruit flies (agricultural pests) have been successfully eradicated from the entire Ryukyu Archipelago. The technology used there did not involve the use of Wolbachia but the Sterile Insect Technique is akin to what is being proposed for using Wolbachia as a birth control technique to prohibit reproduction of the females that mate with "sterile" males that have been reared in the laboratory, and released into the natural population to mate with the wild females to prevent reproduction. The tools may be different but the concept of birth control is similar and the results of the successful program in Okinawa had a significant impact on the export fruit market in Okinawa, essentially tripling the market.

One of the key reasons for the Okinawa success with fruit flies is the implementation of a "systems thinking" approach in addressing issues such as pest control. We are looking forward to implementing such an approach with the application of the Wolbachia technology for mosquito control and eradication. What this means is that there will be research to understand the biology, ecology, behavior, population dynamics, sexual selection, etc. of the wild population before application of the control technology. In this way, the impact, both negative and positive, can be monitored and adjustments can be implemented, if necessary. Such an holistic, integrative systems approach will assure a successful and safe program for control and perhaps eradication such pest populations not only for saving the remaining native bird species but also for controlling and eliminating species that transmit human diseases.

Aloha and Mahalo for the opportunity to present written testimony. I hope to be present virtually during the hearing on June 28th and would be glad to answer questions that might arise.

Ken Kaneshiro

**Nakamura, Gayle M**

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**From:** KJ Daniel <imblesdw3@gmail.com>  
**Sent:** Friday, June 24, 2022 11:46 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] STOP THE MOSQUITOES

I oppose the release of the

**Mosquito Injected Wolbachia Bacterium into the Hawaii islands.**

**I am not understanding the purpose of such evil and wickedness behind this so called scientific experiment.**

**BUT! I will voice my concerns and OPPOSE such nonsense!**

**Please cancel and get rid of this bill forever.**

V/r,  
Ms. Daniel, Kenvee  
(Hawaii Resident)

## Nakamura, Gayle M

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**From:** Megan Isaac <meganisaac96720@gmail.com>  
**Sent:** Friday, June 24, 2022 11:35 AM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] STOP THE GEO ENGINEERED MOSQUITO RELEASE.

Dear Department of Ag Board:

THE VERY DEFINITION OF INSANITY SURELY IS THIS :  
**TAKING HUGE RISKS WITHOUT KNOWING MORE OF THE POTENTIAL HARM FOR GENERATIONS TO COME.**

Hopefully you all are noticing that you aren't sleeping as well as you used to.

Respectfully and out of concern for you and for everyone in Hawaii I ask you :  
'why would you be sleeping well ?'

Introduction of an experimentally inoculated insect with a new strain of bacteria onto our 'aina ? This represents insanity.

This is a project that creates a budget line item. It surely must be yet another example of 'profits before common sense. "

There have been experiments in the past that have zero gone well for either people or species in these islands. This represents yet another huge risk that the Department of Health and Department of Agriculture is taking by considering such a novel and under-documented experiment.

Please take heed that it must be stopped and a very public inquiry must be initiated.

I just learned about this experiment recently and was made aware of the urgency to submit testimony by today. Most people I have spoken to about this remain unaware. The low call numbers Mr Jonathan Ho received a week or two ago is categorically NOT proof of massive amounts of support from the public. Rather, this is proof that this experiment is being proposed without sufficient public oversight and without sufficient consideration of safety. It is not sufficiently 'public knowledge' that this is proposed.

I reference this article about the Oxitec experimental release programs:

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Here are just 2 of the talking points that demonstrate how reckless Oxitec was in breaking known safety protocols in the Florida and California release of the GMO mosquitoes.

- Oxitec's trial does not reveal whether the release of GE mosquitoes suppresses wild mosquito populations, or, importantly, whether it reduces transmission of diseases carried by *A. aegypti*
- The health and environmental effects of this reckless experiment remain completely unknown, and the EPA continues to prioritize corporate interests over public health

Further, a third talking point is that the 'safety data findings' don't meet rigorous standards appropriate for such a clear and apparent risk:

"the pilot study does not reveal whether the release of GE mosquitoes suppresses wild mosquito populations or, importantly, whether it reduces transmission of diseases carried by *A. aegypti*. Thomas

Scott, an entomologist at the University of California, Davis, made an interesting point when he told Nature, "They're not going to be able to do a trial to show that it actually has a public-health impact.

There's not enough Aedes-transmitted viral infection in the Florida Keys."22"

I would add that the same lack of infection in Hawaii's human population of Denge, Zeka etc will also make the findings of 'success' inconclusive. With no way to prove 'success' the unknown safety risks are even more unacceptable.

There are many reasons we have to oppose the release of GMO mosquitoes here in Hawaii. You and the entire State of Hawaii Government must bear liability should anything go wrong.

Please Kokua. Whenever the word 'reckless' is appearing in the review literature about an experiment conducted elsewhere there are grounds for an immediate halt to any proposal to halt it here in Hawaii.

You want your family to be proud of you and for your names to be on the right side of history. Please register that there has not been sufficient consideration of the risk and that this must NOT proceed.

I will be forwarding this email to members of my community and to our elected representatives. If feel that it is important that they are made aware of the risks of this experiment.

Aloha,

Megan Isaac Magdalene  
Hilo Resident.  
808 6408263  
140A Kilauea Avenue  
Hilo HAWAII 96720

**Nakamura, Gayle M**

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**From:** Gina Pereira <lavazzq@gmail.com>  
**Sent:** Friday, June 24, 2022 11:33 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] GMO

No GMO mosquitoes please, I highly object, thanks for hearing my voice!  
Sincerely, Regina Pereira

**Nakamura, Gayle M**

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**From:** Celina <cmilikea@hotmail.com>  
**Sent:** Friday, June 24, 2022 11:33 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] No GMO mosquitoes

I object to the release of manufactured GMO mosquitoes. You can't fight fire with fire. Humans messed with nature. You can't mess with it more. Look at the mongoose released. Yeah that sure helped the rat problem. these mosquitoes bite animals and people. Theirs IS NO LONG TERM STUDY on the effects. you have no right to have your mosquitoes affect my pets only space on my personal property. Will they be state property Who will be liable when that mosquito comes on my property and bites me. How is that different from someone's dog if it was to come on my property to bite me. Who will be held liable. You want to do something that will affect the general public. I would like the name and number of the persons who will be personally held accountable and liable for the release of these mosquitoes.

C. Monge. Hawaii resident  
808-333-6204.

I OBJECT TO THE RELEASE OF GMO MOSQUITOES.



**HOUSE OF REPRESENTATIVES**

STATE OF HAWAII  
STATE CAPITOL, ROOM 316  
415 SOUTH BERETANIA STREET  
HONOLULU, HAWAII 96813

June 24, 2022

Hawaii Board of Agriculture  
Members, Hawaii Board of Agriculture  
Hawai'i Department of Agriculture

Aloha,

As Chair of the Hawai'i State House Committee on Water and Land, I am acutely aware of the extinction crisis facing our native Hawaiian birds. Among the most serious threats to these birds are the avian diseases they get from mosquitoes. We must protect these birds by implementing landscape scale mosquito population control. The best means for doing this is through the importation and release of mosquitoes that are inoculated with Wolbachia. I urge you to allow for the importation of these inoculated mosquitoes by placing them on the List of Restricted Animals Part A.

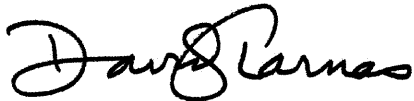
I strongly recommend that your Board approve the listing and allow the importation with permit conditions for field release of the southern house mosquito (*Culex quinquefasciatus*), Asian tiger mosquito (*Aedes albopictus*), and yellow fever mosquito (*Aedes aegypti*). In order to save Hawaiian native birds, your action is to place the mosquitoes on the List of Restricted Animals (Part A), allowing for importation of lab-reared strains inoculated with Wolbachia, and establishing permit conditions for the import and field release of the lab-reared strains of Wolbachia-inoculated mosquitoes.

Our Committee has been told that avian diseases transmitted by non-native mosquitoes pose the greatest threat to the survival of Hawaiian honeycreepers. Rising global temperatures allow these mosquitoes to invade the higher elevation forest habitats of these honeycreepers. The Critically Endangered 'akeke'e and 'akikiki, on Kaua'i, are experiencing declines of 90 percent or more and could quickly become extinct without urgent action. On East Maui, the kiwikiu and 'ākohekohe face comparable threats of extinction. Landscape-control of mosquitoes is the most urgent action we can take in Hawai'i to protect these birds. If the disease cycle is not broken many other honeycreeper species will follow these four into extinction, irreparably losing crucial parts of Hawai'i's biological diversity and cultural richness.

The actions requested by the Hawai'i Department of Land and Natural Resources and Hawai'i Department of Health are a critical step towards saving our endangered forest birds using Wolbachia-inoculated mosquitoes that will function as mosquito "birth control." Contrary to what some may assert, this technique is not a genetically modified organism. Rather, this is called the Incompatible Insect Technique (IIT), and is being safely used in 15 different countries, including the continental U.S., to suppress mosquito populations. Wolbachia is a very common bacteria in Hawai'i and a different strain is already widely present in Hawaiian mosquitoes. Only male mosquitoes will be released, so the released mosquitoes will not bite the birds or humans and cannot transfer the bacteria to any other species.

Please protect our Hawaiian honeycreepers and approve the request by DLNR and DOH.

Mahalo,

A handwritten signature in black ink, appearing to read "David Tarnas". The signature is fluid and cursive, with the first name "David" and last name "Tarnas" clearly distinguishable.

Representative David A. Tarnas

## Nakamura, Gayle M

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**From:** Michelle Melendez <michelle@womenbeingfit.com>  
**Sent:** Friday, June 24, 2022 11:19 AM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] Testimony Conflict of Interest Releasing the Mosquito? (DON'T RELEASE THIS MOSQUITO)

To Hawaiian Agriculture Department,

I'm appalled that with everything going on the world you would add to our stress and release a mosquito that has NO studies on people, animals or the aina if something goes wrong.

Mosquitos are the ONLY insect that carry disease that can kill people and you want to release one that has a Wolbachia Bacterium!

Plus, I'm aware that there may be a **major conflict of interest** to fast track this project and downplay risks to people! OMG!

Advisory Committee of Plants and Animal's recommendation should be null and void due to Conflicts of Interest of committee members pursuant to [HRS 84-14](#).

A few more reasons to NOT do this to Hawaii:

- **Wolbachia can and often does alter DNA, it is considered artificial modification that has unknown consequences to ecology in Hawaii and human health. Source:**  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4013104/>

Did you know that there is evidence that male age and overcrowding during development (i.e., under mass rearing conditions required to produce enough males for IIT to be effective) can reduce the cytoplasmic incompatibility effect in certain insects, **rendering the males fertile [26] and able to spread the Wolbachia infection through surviving females.**

The release of **any females as a result of mis-sorting** for any reason would allow the Wolbachia strain to invade the wild populations of mosquitoes in the release area, thus rendering this control approach ineffective and with the potential to spread a new strain of Wolbachia into the environment with unknown outcomes and consequences.

Introduction of Wolbachia into a mosquito provides the possibility to introduce over time over one thousand new genes.

Research has shown Wolbachia can enhance malaria parasite infection in two genera of mosquitoes. [19-21].

[https://downloads.regulations.gov/EPA-HQ-OPP-2015-0374-0018/attachment\\_1.pdf](https://downloads.regulations.gov/EPA-HQ-OPP-2015-0374-0018/attachment_1.pdf)

**Horizontal transmission between unrelated host species is a proven phenomenon in Wolbachia.** Studies have demonstrated that genetic sequences, ranging in size from single genes to entire bacterial genomes, have been transferred from Wolbachia to many of their insect hosts, and its effect on disease transmission is variable and **potentially dangerous.** <https://www.pnas.org/doi/10.1073/pnas.222228199>

DID YOU KNOW THAT Wolbachia **Enhances** West Nile Virus (WNV) Infection in the Mosquito *Culex tarsalis*  
<https://journals.plos.org/plosntds/article?id=10.1371/journal.pntd.0002965>

DO NOT RELEASE THIS MOSQUITO!

Michelle

**Nakamura, Gayle M**

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**From:** Scott Tanaka <scott.at.202@gmail.com>  
**Sent:** Friday, June 24, 2022 11:17 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] No GMO mosquitos

I object to the release of GMO mosquitos

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Sent from myMail for Android

**Nakamura, Gayle M**

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**From:** Scott Berrett <hawaiibiz808@yahoo.com>  
**Sent:** Friday, June 24, 2022 11:16 AM  
**To:** HDOA.PQ.TESTIMONY; HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Mosquitoes? ABSOLUTELY NO unless unbiased environmental impact assessment.

Aloha,

Altered mosquito released in Hawaii? I like the idea but ONLY after unbiased, long term, environmental impact assessment followed by public debate. What could go wrong? Look at prior release of other "beneficial" organisms. Big risks exist. Think Jurassic Park. Life will find a way.

Mahalo,

Richard Berrett  
808-652-9773  
Testimony submitted prior to June 24 end of day deadline.

## Nakamura, Gayle M

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**From:** Ancient Valley Growers LLC <ancientvalleygrowers@gmail.com>  
**Sent:** Friday, June 24, 2022 10:51 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Please do not release mosquitoes!

I'm not well versed in how these sorts of things work but is there some kind of town hall meeting to address this matter or has that time passed?

Please remember every introduced animal/insect weather purposeful or accidental, EVERY single introduction has ended in disaster! I will list some of the ones I know of.

Mongoose- terrible / eat Honu eggs

Myna bird-threaten native birds you care about Crab spider - beats down bee population among other things Rammie moth- newest insect directly threatening my livelihood as a mamaki farmer

So many more , all ended in disaster.

I'll stop there but you get the point. I commend you for your efforts to help native species, we ourselves do the same on our mamaki farm. Can we have more time to brainstorm a better solution than augmented mosquitoes? What about local efforts to provide environments for more native bats? One batt will eat 1,000 mosquitoes per night! I plan to build bat houses on my property for exactly this reason. What if the state where to subsidize residents to build bar houses and spray on their own property to mitigate mosquito population? The money can come from the money the state will save on implementing my idea to ban round up use (currently working on that idea).

I'm sorry but "the science" is always changing and we have seen how destructive the scientism has been during covid. I can provide plenty of data upon request. There is always a better way. Please maybe start working on captive breeding of these birds if possible. Our mamaki farm is home to the native Kamehameha butterfly. The Rammie moth targets the mamaki which is home to the butterfly. However the myna birds eat all of the Rammie moth so we have two invasive canceling each other out. Nature always finds a way to balance. Humans often feel obligated to interject in nature , generally with good intention but that often leads to more destruction.

As a permaculture farmer I urge you to attempt another solution. At the very least provide the public with the data that has tested this bacteria in humans for at least 10 years.

Mahalo

Matt Drayer

Ancient Valley Growers LLC  
PO BOX 951 Pahala HI  
96777

808-756-5434

Sent from my iPhone

**Nakamura, Gayle M**

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**From:** Diana Saycon <diana.snhc@gmail.com>  
**Sent:** Friday, June 24, 2022 10:48 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Oppose the GMO mosquito release in Hawaii

My family and I are strongly opposed to the release of the GMO mosquito in Hawaii where we live.

Best,  
Diana

--  
Diana

**Nakamura, Gayle M**

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**From:** Terry Murakami <terrytmura@outlook.com>  
**Sent:** Friday, June 24, 2022 10:48 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Cc:** HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] Testimony for releasing Wolbachia injected Mosquitoes

While I do like the general idea of this approach (vs using outright genetically modified mosquitoes) I do think that there are legitimate concerns about this method:

Have any studies (especially long-term) have been done where this bacteria could impact humans and wildlife, particularly here in Hawaii? From the [www.worldmosquitoprogram.org](http://www.worldmosquitoprogram.org) site, the first attempt at this was done 2011. What type of studies have been done, considering the differing environmental factors from those regions compared to Hawaii?

How sure are they when it comes to being careful about not releasing females? Can they seriously sort that many of them out, also given that large amounts of them have to be release to make an impact even a small amount accidentally being released can still be a big problem.

Given how mosquitoes can be very difficult to control I would like to ask that more long term studies be done before considering doing this in Hawaii. While it is admirable to save the dwindling native bird species, we have to be careful we don't create much bigger problems, such as the release of mongoose, barn owls, etc.

Studies that should be considered:  
<https://www.pnas.org/doi/10.1073/pnas.222228199>  
Oxitec, Ltd. Submission to Docket EPA-HQ-OPP-2015-0374

Mahalo,  
Terry Murakami

**Nakamura, Gayle M**

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**From:** Cathrine Sinclair <8stardancer8@gmail.com>  
**Sent:** Friday, June 24, 2022 10:31 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] testimony - GMO mosquitoes in HI

ABSOLUTELY NOT!!! This is complete **insanity** and will wreak havoc on our public health and vital-for-survival ecosystem. It is levels of magnitude worse than the mongeese vs rats stupidity of years ago.

I am adamantly OPPOSED to the implementation of this ludicrous policy.

Cathrine Sinclair, RN (Ret.)

**Nakamura, Gayle M**

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**From:** Kellyna Campbell <kellynakc@gmail.com>  
**Sent:** Friday, June 24, 2022 10:09 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Mosquitoes

We need to conduct a full impact study regarding this mosquito since there could be a substantial impact on public health and health of birds and other animals.

Please implement the study immediately. I am concerned about our beautiful fragile environment and it is up to us to protect the aina, the animals and our people. Please do not release the Wolbachia mosquito under you have done an extensive study.

Thank you,

Kellyna Campbell

Council Chair  
Alice L. Lee

Vice-Chair  
Keani N.W. Rawlins-Fernandez

Presiding Officer Pro Tempore  
Tasha Kama

Councilmembers  
Gabe Johnson  
Kelly Takaya King  
Michael J. Molina  
Tamara Paltin  
Shane M. Sinenci  
Yuki Lei K. Sugimura



Director of Council Services  
Traci N. T. Fujita, Esq.

Deputy Director of Council Services  
David M. Raatz, Jr., Esq.

**COUNTY COUNCIL**  
COUNTY OF MAUI  
200 S. HIGH STREET  
WAILUKU, MAUI, HAWAII 96793  
[www.MauiCounty.us](http://www.MauiCounty.us)

June 24, 2022

TO: Honorable Phyllis Shimabukuro-Geiser, Chair  
Hawai'i Board of Agriculture

FROM: Kelly Takaya King  
Councilmember  
Chair, Climate Action, Resilience, and Environment Committee

**SUBJECT: Testimony in Support of Proposal to Add Three Mosquito Species to List of Restricted Animals**

Thank you for the opportunity to testify in support of the proposed actions to add three mosquito species to the list of restricted animals, allow the importation of Wolbachia-incompatible mosquitoes for release to suppress wild populations of Southern House Mosquitoes, and establish permit conditions for field trials. I am testifying in my capacity as an individual councilmember. These key actions will help Birds, Not Mosquitoes and its partners move toward the implementation of a project which holds promise to protect our endangered forest birds.

This proposed project aligns with Maui County Council's efforts to recognize the importance of endangered species and participate in multi-level collaborations to protect these creatures from extinction. Hawai'i has been called the "extinction capital of the world" and just last year, three birds native to the islands of Maui County were declared extinct. With the impacts of climate change threatening the remaining species, we must act swiftly to protect these precious animals.

Native species have shaped our islands' culture and play critical roles in our ecosystems. Earlier this month, I hosted a town hall with the Birds, Not Mosquitoes partnership. All community concerns and questions were answered with care. Birds, Not Mosquitoes explained how this project carries minimal risk, while the consequences of inaction are dire. For these reasons, I strongly urge your support of these actions on your agenda.

Mahalo Nui,

*Kelly T. King*  
Kelly Takaya King



*Bringing back the birds*

24 June 2022

Testimony of American Bird Conservancy to  
Hawai'i Board of Agriculture  
Supporting the Listing, Import, and Permit Conditions of three species of mosquitoes  
Tuesday, June 28, 2022

Aloha mai e Chairperson Shimabukuro-Geiser and fellow board members,

American Bird Conservancy **strongly supports the listing, importation, and establishing permit conditions for field release** of southern house mosquito (*Culex quinquefasciatus*), Asian tiger mosquito (*Aedes albopictus*), and yellow fever mosquito (*Aedes aegypti*). Placing the mosquitoes on the List of Restricted Animals (Part A), allowing for importation of lab-reared strains inoculated with *Wolbachia*, and establishing permit conditions for the import and field release of the lab-reared strains of *Wolbachia*-inoculated mosquitoes are **all critically needed for saving Hawaiian birds.**

American Bird Conservancy (ABC) is a national non-profit organization dedicated to the conservation of wild native birds and their habitats throughout the Americas. ABC has had a strong and growing program in Hawai'i for more than a decade, working with state, federal and private partners to protect, manage, and restore critical habitat for some of the most endangered birds in Hawai'i. Our president and organization have identified halting bird extinctions in Hawai'i as one of our highest priorities, and we are dedicated to working with our partners across the islands to accomplish this goal.

Avian diseases transmitted by non-native mosquitoes pose the greatest threat to the survival of Hawaiian honeycreepers. Rising global temperatures are allowing these mosquitoes to invade the last forested strongholds for our honeycreepers. On Kaua'i, the collapse of six native songbird species has been linked to avian malaria, indicating that these long predicted impacts of climate change are occurring now. The Critically Endangered 'akeke'e and 'akikiki are experiencing declines of 90 percent or more and could quickly become extinct without urgent action. On East Maui, the kiwiku and 'ākohekohe face comparable threats of extinction. A recent US Department of Interior report ([Paxton et al. 2022](#)) estimated 'akikiki are likely to go extinct in 2023, and the other three species soon thereafter.

Landscape-control of mosquitoes is the most urgent conservation problem in Hawai'i, and if the disease cycle is not broken many other honeycreeper species will follow these four into extinction, irreparably losing crucial parts of Hawai'i's biological diversity and cultural richness. They are integral components of our forests, indicating overall ecosystem health and serving as pollinators, seed dispersers, and predators. Their beauty, behaviors, and spiritual connotations are woven into mele, hula, and 'ōlelo no'eau, and iconic Hawaiian materials created through featherwork. These birds are found nowhere else in the world, and we have a kuleana to protect them.

The actions requested by the Hawai'i Department of Land and Natural Resources and Hawai'i Department of Health are a critical step towards saving our endangered forest birds using *Wolbachia*-inoculated mosquitoes that will function as mosquito "birth control." This approach, the Incompatible Insect Technique (IIT), is being safely used in 15 different countries, including the continental U.S., to suppress mosquito populations. Only males will be released, so the released mosquitoes will not bite the birds (or humans), and cannot transfer the bacteria to any other species. *Wolbachia* is a very common bacteria in Hawai'i and worldwide, and a different strain is already widely present in Hawaiian mosquitoes.

It is important to understand that using *Wolbachia* bacteria as mosquito birth control is **NOT** a genetic method and is **NOT** a genetically-modified organism (GMO). No genes are modified in the bacteria, mosquitoes, or during any other step of the process. One of the reasons the *Wolbachia* method was selected was because it does not involve any genetic manipulation or changes, and so would be the best solution for Hawai'i's conservation crisis. Because the mosquitoes cannot successfully reproduce, it is a self-limiting process. If releases are stopped, changes in the mosquito population will be reversed. Mosquitoes have been in Hawai'i less than 200 years, so are not an integral part of the ecosystem so removing them will not have any detrimental effect to the food webs. Conversely, Hawaiian honeycreepers have been here 5-6 million years, and are core to the fiber of our islands.

Once these mosquito species are on the Restricted Animals (Part A) List, the next step is being able to import the *Wolbachia*-inoculated mosquitoes, and then deploy them in the field according to the permit conditions established. This series of three, connected actions has repeatedly been shown to safely suppress mosquito numbers and reduce disease transmission in the wild in other locations. Therefore, it is crucial that DLNR be able to import the large number of male mosquitoes needed to successfully implement mosquito suppression in the forests of Hawai'i to protect our native birds.

A large multi-agency partnership called [Birds, Not Mosquitoes](#), is working together to save our honeycreepers using *Wolbachia*-inoculated mosquitoes as mosquito "birth control". The partnership includes over 20 organizations including three state agencies, four federal agencies, and four nonprofit groups, including ABC. This breadth of organizations emphasizes the wide-ranging support for this urgently needed management action.

Mahalo for your support in protecting our treasured Hawaiian birds,



Brad Keitt  
bkeitt@abcbirds.org  
Oceans & Islands Director  
831-420-7115



Chris Farmer, Ph.D.  
cfarmer@abcbirds.org  
Hawai'i Program Director  
808-987-1779



Luka Zavas  
lzavas@abcbirds.org  
Outreach Associate  
808-330-3240

**Nakamura, Gayle M**

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**From:** Steph D. <stephd777@yahoo.com>  
**Sent:** Friday, June 24, 2022 9:56 AM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] Testimony Regarding the Release of Male Mosquitos with the Wolbachia Bacterium

To Whom It May Concern,

Aloha, I am submitting testimony against the release of male mosquitos with the Wolbachia Bacterium, at this time.

It is my understanding that the motive behind this proposed action is a good one, but there needs to be a full evaluation on the impacts to the environment and society, including public health. It is my understanding that the mosquitos will be released (and may be released repeatedly) in "remote areas" where people do not traverse, but mosquitos can fly. Therefore, what keeps them from roaming out of these "remote areas"? What if someone does happen to venture to these "remote areas"?

Also, there is the potential that a female mosquito may be released. Has a study been performed to study what happens if a female mosquito is released?

Perhaps, there should be further studies in how to achieve the goal of saving the native birds that would not involve modifying mosquitos that could potentially have an adverse effect on the environment or society, including public health.

Thank you for your time and consideration.

Very Respectfully,  
Steph D.

## Nakamura, Gayle M

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**From:** Donna T <sharkgss@gmail.com>  
**Sent:** Friday, June 24, 2022 9:58 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Testimony Regarding Permit of Wolbachia Mosquitoes

Aloha,

I am in strong opposition to the import and release of transfected Wolbachia mosquitoes in the state of Hawaii. Not only is there vast scientific data demonstrated in document links below that suggest Wolbachia is a very risky method, but there appears to be a major conflict of interest to fast track this project and downplay those risks.

### **1. Horizontal gene transfer with Wolbachia can and often does alter DNA, it is considered artificial modification that has unknown consequences to ecology in Hawaii and human health.**

It has already been shown that horizontal gene transfer (HGT) can transfer genes between Wolbachia and its host in *Aedes aegypti* [12] and several other mosquito species [13]. Therefore, Wolbachia can genetically transform its host with functional genes with currently unknown consequences. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4013104/>

There is evidence that male age and overcrowding during development (i.e., under mass rearing conditions required to produce enough males for IIT to be effective) can reduce the cytoplasmic incompatibility effect in certain insects, rendering the males fertile [26] and able to spread the Wolbachia infection through surviving females.

The release of any females as a result of mis-sorting for any reason would allow the Wolbachia strain to invade the wild populations of mosquitoes in the release area, thus rendering this control approach ineffective and with the potential to spread a new strain of Wolbachia into the environment with unknown outcomes and consequences.

Introduction of Wolbachia into a mosquito provides the possibility to introduce over time over one thousand new genes.

Research has shown Wolbachia can enhance malaria parasite infection in two genera of mosquitoes. [19-21].

[https://downloads.regulations.gov/EPA-HQ-OPP-2015-0374-0018/attachment\\_1.pdf](https://downloads.regulations.gov/EPA-HQ-OPP-2015-0374-0018/attachment_1.pdf)

Horizontal transmission between unrelated host species is a proven phenomenon in Wolbachia. Studies have demonstrated that genetic sequences, ranging in size from single genes to entire bacterial genomes, have been transferred from Wolbachia to many of their insect hosts, and its effect on disease transmission is variable and **potentially dangerous**. <https://www.pnas.org/doi/10.1073/pnas.222228199>

Also of concern is this observation of Wolbachia-induced **enhancement of a human pathogen in mosquitoes**, suggesting that caution should be applied before releasing Wolbachia-infected insects as part of a vector-borne disease control program.

Wolbachia Enhances West Nile Virus (WNV) Infection in the Mosquito *Culex tarsalis*  
<https://journals.plos.org/plosntds/article?id=10.1371/journal.pntd.0002965>

### **2. There are conflicts of interest among voting members of the committee on 9 June**

Advisory Committee of Plants and Animal's recommendation should be null and void due to Conflicts of Interest of committee members pursuant to [HRS 84-14](#).

#### IV. Conflicts of Interests (HRS § 84-14)



**A. Disqualify Yourself When You Have a Conflict (HRS § 84-14(a)).** Do not take any **official action** affecting a **business** in which you have a **financial interest**.

You have a "**financial interest**" in a **business** if you (or your spouse, civil union partner, or dependent child) have any of these interests:

- **Ownership of a Business.** Owning a business, including owning shares of stock in a business.
- **Employment.** Being employed by a business, even if part time.
- **Officer or Director Position.** Serving as an officer or director of a for-profit company or a non-profit organization, even if you are not paid for your services.
- **Ownership of Real Property or Personal Property.**
- **Loan or Debt.** Having a loan or debt that you owe to a business.
- **Creditor of Insolvent Business.** Being a creditor of an insolvent business, such as a business that has filed for bankruptcy.

If you have any of these financial interests in a business, you must disqualify yourself from taking **official action** affecting that business. For example, if your spouse is employed by a company or is on the board of directors of a non-profit organization, you must disqualify yourself from taking any official action as a state board member affecting that company or non-profit organization.

#### FYI

"Official action" means a decision, recommendation, approval, disapproval, or any other discretionary action that you take as a state board member. "Official action" is not limited to making motions or voting at meetings; it also includes participating in discussions or deliberations leading up to a vote or decision.

#### FYI

A "**business**" includes a for-profit company, non-profit organization, and a political campaign.



#### Birds, Not Mosquitoes

Home About Meet the Species Techniques FAQ Contact

BNM includes representatives from the Hawai'i Department of Land and Natural Resources, Hawai'i Department of Health, US Fish and Wildlife Service, University of Hawai'i, U.S. Geological Survey, National Park Service, American Bird Conservancy, The Nature Conservancy of Hawai'i, Coordinating Group on Alien Pest Species, and Island Conservation.



On 9 June the Advisory Committee on Plants & Animals, the personnel below voted to approve the import permit in a unanimous vote (7/0). The vote is at 1:03:45. [https://www.youtube.com/watch?v=Wt\\_Jbygvek4](https://www.youtube.com/watch?v=Wt_Jbygvek4)

1. Thomas Eisen (for Mary Alice Evans, Director of OEQC - ERP for Environmental Review Program)
2. Cynthia King (for Suzanne Case, DLNR)
3. Sam Gon (The Nature Conservancy)
4. Josh Fisher (USFWS)
5. Gracelda Simmons (Dept of Health's designee)
6. Maria Haws (University of Hawaii)
7. Darcy Oishi (Chairperson of Advisory Committee/Dept of Agriculture's designee)

Of the above, only Thomas Eisen's agency and Darcy Oishi are not a partner in the BNM. It appears Sam Gon is member of the BNM steering committee. <https://constructedenvironment.com/2023-conference/program/sam-gon>

**How is it ethical that permitting is what the BNM steering committee is working on?**



Thank you for your consideration to these concerns,

Donna Thompson

**Nakamura, Gayle M**

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**From:** Claudia <claudiarn@gmail.com>  
**Sent:** Friday, June 24, 2022 9:58 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Mosquito expetiment

Will keep this short and to the point

As an RN I consider myself well educated esp regarding "studies" that help decisions.

Please consider that the planned introduction is making us the "fall guy" to see the environmental impact that is yet unproven. Yet another "introduction" without safety considerations being effectively considered.

Thank you for your consideration in this matter

Claudia Schimmer- Keawe, Retired RN  
Papaikou, Hawaii

**Nakamura, Gayle M**

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**From:** Pasha Official <pasha@pashaofficial.com>  
**Sent:** Friday, June 24, 2022 9:57 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Cc:** HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] GMO Mosquito Testimony

Aloha, our Ohana lives on the Big Island and Oahu.

We are **VERY OPPOSED** to the proposed GMO mosquito release in Hawaii.

The risks are real, which can lead to **new disease and/or amplify existing disease**. Therefore, there have to be **long-term** 3rd party studies showing safety and environmental impacts before any proposed release in the delicate environment of Hawaii.

***Wolbachia infections can enhance pathogen transmission.*** *Wolbachia has enhanced multiple arboviruses in Culex tarsalis mosquitoes.<sup>[84]</sup> In another study, West Nile Virus (WNV) infection rate was significantly higher in Wolbachia-infected mosquitoes compared to controls.<sup>[85]</sup>*

*Wolbachia may induce reactive oxygen species-dependent activation of the Toll (gene family) pathway, which is essential for activation of antimicrobial peptides, defensins, and cecropins that help to inhibit virus proliferation.<sup>[86]</sup> Conversely, certain strains actually dampen the pathway, leading to higher replication of viruses. One example is with strain wAlbB in Culex tarsalis, where infected mosquitoes actually carried the west nile virus (WNV) more frequently. This is because wAlbB inhibits REL1, an activator of the antiviral Toll immune pathway. As a result, careful studies of the Wolbachia strain and ecological consequences must be done before releasing artificially-infected mosquitoes in the environment.<sup>[87]</sup>*

*We don't need more viruses in Hawaii. We get bitten by mosquitos daily and we never get sick from them. If we don't want to get bitten we use citronella. The State and County has to look at other non-toxic, non-risky options if mosquito population needs to be controlled in areas of interest.*

*Sincerely,*

*The Yushin Ohana*

**Nakamura, Gayle M**

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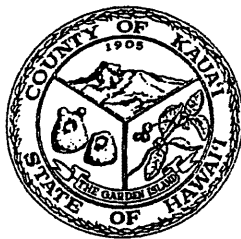
**From:** Jane Brahm <janebrahmaloha@gmail.com>  
**Sent:** Friday, June 24, 2022 9:57 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Release of mosquitoes

Please do not release the mosquito. More information is needed.

Mahalo,  
Jane Brahm  
P.O. Box 403  
Kurtistown, HI. 96760  
808-387-1150

**COUNTY COUNCIL**

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E-mail: cokcouncil@kauai.gov

**Council Services Division**  
4396 Rice Street, Suite 209  
Lihu'e, Kaua'i, Hawai'i 96766

June 23, 2022

Hawai'i Board of Agriculture  
Phyllis Shimabukuro-Geiser, Chair  
Via E-mail: hdoa.board.testimony@hawaii.gov

Dear Chair Shimabukuro-Geiser and Members of the Hawai'i Board of Agriculture,

**RE: SUPPORT OF THE PROPOSAL TO ADD THREE MOSQUITO SPECIES TO LIST OF RESTRICTED ANIMALS**

I am writing to express my strong support of the proposal to add the Southern House Mosquito, Asian Tiger Mosquito, and Yellow Fever Mosquito species to the List of Restricted Animals. My letter of support is submitted in my individual capacity as a Councilmember of the Kaua'i County Council.

I strongly support the critical and important step of listing, allowing importation, and establishing permit conditions for field release of the Southern House Mosquito (*Culex quinquefasciatus*), Asian Tiger Mosquito (*Aedes albopictus*), and Yellow Fever Mosquito (*Aedes aegypti*). Placing the mosquitos on the List of Restricted Animals (Part A), allowing for importation of lab-reared strains inoculated with *Wolbachia*, and establishing permit conditions for the import and field release of the lab-reared strains of *Wolbachia*-inoculated mosquitos are all critically needed to save native honeycreepers.

Kaua'i is home to 8 bird species found nowhere else, including 4 honeycreepers: 'akikiki, 'akeke'e, 'anianiau, and Kaua'i 'amakihi, which are rapidly declining towards extinction due to various threats, especially avian malaria transmitted by non-native mosquitos. Rising global temperatures are allowing these mosquitos to expand its range and can be found in the highest parts of Kaua'i, where the last remaining population of native forest birds persist. These critically endangered birds are experiencing declines of 90% or more and could quickly become extinct without urgent action. If the disease cycle is not broken, many other honeycreeper species in Hawai'i will follow into extinction, irreparably losing crucial parts of Hawai'i's biological diversity and cultural richness.

The actions requested by the Hawai'i Department of Land and Natural Resources and Hawai'i Department of Health are a critical step towards saving Hawai'i's endangered forest birds using *Wolbachia*-inoculated mosquitos that will function as mosquito "birth control." This approach is being safely used in 15 different countries, including the continental United States, to suppress mosquito populations.

AN EQUAL OPPORTUNITY EMPLOYER

Hawai'i Board of Agriculture

Phyllis Shimabukuro-Geiser, Chair

RE: Support of the Proposal to Add Three Mosquito Species to List of Restricted  
Animals

June 23, 2022

Page 2

I appreciate your consideration of this proposal and urge you to support the addition of the three mosquito species to the List of Restricted Animals.

Thank you for your time and consideration in approving the proposal. Should you have any questions, please feel free to contact me at the Office of the County Clerk, Council Services Division, at (808) 241-4188.

Sincerely,

A handwritten signature in black ink, appearing to read "LUC", with a stylized flourish at the end.

LUKE A. EVSLIN

Councilmember, Kaua'i County Council

AAO:lc

**Nakamura, Gayle M**

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**From:** natashainaba@aol.com  
**Sent:** Friday, June 24, 2022 9:45 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Release of Walbachia Bacterium injected mosquitoes

Aloha,

I am very strongly opposing the release of ANY Walbachia Bacterium injected mosquitoes into Hawai'i!!

There has been NO STUDIES showing how this could affect human or animal populations!! It could have devastating consequences!!

What would happen to our human population??? What would happen to the already close to extinct animals or any animal population???

Therefore, I am strongly opposed to the release of any Walbachia Bacterium injected mosquitoes into our Hawai'i!!

Aloha,

Natasha Inaba

**Nakamura, Gayle M**

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**From:** Moleka Malumaleumu Leaeno Hicks <cplhicksoftharmy@gmail.com>  
**Sent:** Friday, June 24, 2022 9:38 AM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] Stop genetic modification And mosquitos release

It is a war crime to release these mosquitos!! This is a threat to Hawaii as a whole !!! You guys will be charged with war crimes!! This information is being forwarded to the department of justice! Investigation for crimes Against humanity!!!

**Nakamura, Gayle M**

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**From:** Margaret Prescott <margeeprescott@icloud.com>  
**Sent:** Friday, June 24, 2022 9:33 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] GMO mosquitoes

To whom it may concern

I can't believe this is even being considered. Before anything like this happens we need to see studies long-term studies peer reviewed studies etc. without them this should go no further!

Margaret Prescott

Sent from my iPhone

## Nakamura, Gayle M

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**From:** Monica Silva <silva.monica.143@gmail.com>  
**Sent:** Friday, June 24, 2022 9:19 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Monica Vega

How are you going to release Mosquito injected wolbachia bacterium that sterilizes eggs with no studies and jeopardize our health!??? I'm mean wow talk about trying to kill our population!

## Nakamura, Gayle M

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**From:** Nicole Busto <mauinutritionaltherapy@gmail.com>  
**Sent:** Friday, June 24, 2022 9:10 AM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] Mosquito Release

Dear Board,

I understand Maui County wants to release male mosquitoes that sterilize mosquito eggs.

I understand there is a small chance females will be released.

My Major concern is there are NO studies of the dangers if a female gets out and what happens to humans if they are bitten.

What happens to the birds, the birds you are trying to save, if they're bitten by a mosquito that sterilizes eggs?

There needs to be a FULL scope Environmental Impact Study before you release an invasive species!

So many decisions that are made are made in error.

There need to be studies done before you interfere with Nature in this way.

The phrase "What could go wrong?" sticks in my head.

Will this be another situation like releasing the mongoose to help with the rats????

Think long and hard about the possible negative effects that you will be creating from your decision!!!!

Regards,

Nicole LeClaire

Maui Nutritional Therapy  
Nicole LeClaire NTP, CGP  
808-463-7783

**Nakamura, Gayle M**

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**From:** Rebecca Corby <rebeccacorby@gmail.com>  
**Sent:** Friday, June 24, 2022 8:55 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Gmo mosquito project

Please DO NOT release these gmo mosquitos into our delicate environment!

The public deserves to see a full study on the effects of these gmo mosquitoes on people and the environment BEFORE any plans move forward to release them .

Haven't we learned anything from our past ? Many gmo and foreign species have been introduced to Hawaii without adequate studies before hand and the results have been far reaching .

The people and environment of Hawaii deserves a full study to make sure this is safe before doing

Thank you  
Rebecca Corby  
Big Island

Sent from my iPhone

## **Nakamura, Gayle M**

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**From:** Karen Rowland <jadekaren@pacific.net>  
**Sent:** Friday, June 24, 2022 8:52 AM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] Testimony to STOP Wolbachia Bacterium injected mosquitos being released in Hawaii

My testimony:

There are NO studies of the dangers if a female gets out and what happens to humans if they are bitten. What happens to the birds, they want to save, if they're bitten by a mosquito that sterilizes eggs?

We need to conduct a FULL scope Environmental Impact Study regarding this mosquito since there could be a substantial impact on public health and health for birds and other animals.

Karen Rowland  
808-640-6981 cell

**Nakamura, Gayle M**

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**From:** FreedomFamilyHawaii@protonmail.com  
**Sent:** Friday, June 24, 2022 8:43 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] RE: The Release Mosquito Injected Wolbachia Bacterium that Sterilizes Eggs

To Whom it concerns,

For the release of male-mosquitoes, that don't bite, to hopefully **sterilize** female-mosquito eggs, with the chance for the female-mosquitoes, that do bite, to ultimately and eventually to bite a person(s), would then release the Wolbachia Bacterium.

There are **NO studies of the dangers**, to the if-and-when the female-misquitoes bite the human being(s), or the **what happens to humans**, if they are bitten.

What happens to the birds species, that are protect, if they're bitten by a female-mosquito.

The fact that there is no documented evidence, to indicate if any animal species, that are bitten by the mosquitoes injected with Wolbachia Bacterium, will be sterilized as well.

We need to conduct a **FULL scope Environmental Impact Study**, in-regard to the release of mosquitoes with the Wolbachia Bacterium.

Since there could be a substantial impact on public health, and **health for birds plus other animals, as well to the long-term environmental impacts**.

**Take note, cease-and-desist on all releasing of any type, as described above, with any injected for substance, as the consequential impacts of harm have not been evaluated.**

Mahalo Nui Loa,  
Ryan Luther

## Nakamura, Gayle M

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**From:** Jacqueline Bosman <jbosman3@gmail.com>  
**Sent:** Friday, June 24, 2022 8:15 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] NO to Releasing of GE Mosquitoes!

Aloha,

I oppose the release of altered mosquitos in Hawaii.

I think the citizens of Hawaii have much to be concerned about with the release of GE insects as the outcome of this experiment remains completely unknown.

There seems to be little risk and thus no real need for these mosquitos to kill 'harmful' bacteria if there is no rampant or effective disease shown to be creating an issue.

If there is no measure of concerning disease then why introduce something into our environment that may effect our ecosystems, people and other living things.

This should not be something we rush to do. I, again, do Not support the release of genetically altered insects such as mosquitoes in Hawaii or any other place in that case.

Best,

Jacqueline  
Aina Haina resident

**Nakamura, Gayle M**

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**From:** rory <rorypringle@gmail.com>  
**Sent:** Friday, June 24, 2022 7:57 AM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] NO TO GMO MOSQUITOS

This is pure insanity - there isn't enough research on the long-term effects of introducing a GMO species into our aina.  
STOP THE MADNESS

**Riordan Pringle**

**[Ho and Pringle Productions](#)**



**Nakamura, Gayle M**

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**From:** Glen Miguel-Matsumoto <glen.miguelmatsumoto20@gmail.com>  
**Sent:** Friday, June 24, 2022 7:49 AM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] [Opposition] Releasing Mosquito Injected Wolbachia Bacterium to the environment

Aloha,

I cannot support a course of action that has not released a known, detailed and full-scaled long-term study of the dangers to Hawaii's environment-- especially when it involves genetically modified organisms. The public deserves to gain the maximum amount of transparency of the pros and cons regarding this proposal. Since a detailed study of the proposal has not been released yet, I am a hard no.

Mahalo,  
Glen Miguel-Matsumoto

## Nakamura, Gayle M

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**From:** Krista Sharp <thompson\_krista@yahoo.com>  
**Sent:** Friday, June 24, 2022 7:35 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Permit Concerns for Wolbachia Mosquitoes in Hawaii

To Whom It May Concern,

I have been following the Permit process for releasing Wolbachia Mosquitoes in Hawaii, and as an Environmental Scientist, I wanted to let you know about my reservations about moving forward with the Permit. While I understand the concerns and need for remediation due to the havoc invasive species and population growth have caused on Hawaii's native species, I am apprehensive about the validity of the choice to Permit the release and introduction of Wolbachia Mosquitoes. There are still unknown negative consequences, such as the strains being transferred to other insects and the potential environment and economic impact of the host shift. Some females will inevitably escape.

It is imperative that DNLNR does its due diligence and performs a full scope and unbiased Environmental Impact Assessment (EIA) to systematically examine the unintended consequences of the program if implemented in Hawaii and release that information to the public.

There are several statements in the June 9, 2022, *Culex quinquefasciatus* Field Release, DLNR request (Source: <https://hdoa.hawaii.gov/wp-content/uploads/2018/05/DLNR-Culex-quinquefasciatus-PA-All-Docs.pdf>), such as "The likelihood that introduced strains of Wolbachia would become the dominant strains in the environment is highly unlikely," and "We are currently adapting the Verily sex sorting pipeline to *Culex* mosquitoes but as the basic features used for sex sorting, particularly the adult morphology, are similar between *Culex* and *Aedes* we hope for extremely high accuracy sorting" that do not quantify the risk and indicate further impact analysis and more conclusive data is needed to warrant such a significant decision is required.

"Arthropods present complex and poorly understood ecological relationships, and alterations of reproductive parameters of non-target species can generate unknown ecological disturbances" (Source: <https://www.science.org/doi/10.1126/science.351.6279.1273-b>). Identifying all elements of risk associated with releasing mosquitoes containing Wolbachia into naturally occurring populations is extremely difficult and must be further investigated as the current studies are inconclusive.

Thank you for your consideration,

Krista Sharp

## **Nakamura, Gayle M**

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**From:** Bridgette McCaul <bmccaul50@gmail.com>  
**Sent:** Friday, June 24, 2022 7:24 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Stop the Mosquito release in hawaii

Please stop the release of the Mosquito that sterilizes the egg. There need to be a full impact study on this for humans, we do not need another debacle to our environment.

Sent from my iPhone. Bridgette McCaul

## Nakamura, Gayle M

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**From:** julia mcc <passion2travel@gmail.com>  
**Sent:** Friday, June 24, 2022 7:02 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] MOSQUITO release problematic

Aloha -

PLEASE reconsider what the consequences can be to our planet, pollinators , people.  
Long term studies , even short term have not been inclusive of all scenarios.

🙏🦋 Please don't vote for this.

Be Healthy & Blessings of Aloha 🌅

Julia McCormick  
Wild Things Hawaii Farm  
808-927-1486

Be Healthy & Blessings of Aloha 🌅

Julia  
Wild Things Hawaii Farm

**Nakamura, Gayle M**

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**From:** Clearbrightsky <clearbrightsky@protonmail.com>  
**Sent:** Friday, June 24, 2022 6:42 AM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] Please Do Not Release Mosquitos!

Aloha,

I recently learned that there is a consideration to release mosquitos with Walbachia into our environment here in Hawaii.

My understanding is that there has not been an environmental impact study or studies on the possible negative impact of these mosquitos being released.

In my mind that is reckless. We have seen many examples of good intentions leading to undesirable results.

Please do not release mosquitos with Walbachia virus.

Mahalo!

Sent from Proton Mail for iOS

## Nakamura, Gayle M

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**From:** Jessica <jessica4staterep@gmail.com>  
**Sent:** Friday, June 24, 2022 6:11 AM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] Wolbachia Bacterium injected mosquitoes

Aloha,

This is alarming that I must even write this and take action to demand a completely cease and desist of the releasing of Wolbachia Bacterium injected mosquitoes in Hawaii.

We the people have not seen the Environmental Impact Study before, going against Mother Nature and releasing an invasive species.

I am also curious about the special interests involved in this. The people of these islands deserve to be heard and vote on this very subject. Hawaii is has a beautiful and unique ecosystem we must protect. We would like full transparency on the funding of this project and the dangers. There is great risk when using genetically altering anything in the environment. Hawaii is tired of being used as an experiment.

Please put a stop to this. Respect the people and do the right thing.

Mahalo nui,

-Jessica (Priya) Caiazzo  
[Jessica4staterep@gmail.com](mailto:Jessica4staterep@gmail.com)

## Nakamura, Gayle M

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**From:** Ma'ata Tukuafu <maata.tukuafu808@gmail.com>  
**Sent:** Friday, June 24, 2022 5:54 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Please do studies first on the Mosquito Experiment

Aloha,

We need to conduct a full scope environmental impact study before conducting an experiment like this. It is very possible that releasing these mosquitos could cause harm to the environment, and to humans.

Please do the studies first!

Mahalo,

Ma'ata Tukuafu

PO Box 993

Kamuela, HI 96743

## Nakamura, Gayle M

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**From:** Rocky Ishibashi <ahicatcher@icloud.com>  
**Sent:** Friday, June 24, 2022 5:49 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Sterile mosquitoes

Sent from my iPhone

Am so tired of the idiots that get to decide what to bring into Hawai'i by total incompetence politicians

Like cane toads/to eat cane spiders

Mongoose to eat rats/mongoose hunt day time

Rats come out at night

Now got two pests instead of none

Politicians have no clue

They created the ethanol legislation that required all gasoline sold in Hawaii to contain 10% renewable gasoline

What these idiot politicians had no clue was ethanol is a solvent that dissolved fiberglass boat fuel tanks sending fiberglass sludge into boat motors

As. I remember they tried the sterile fruit fly 40 years ago

We still have fruit flies tell you all you got to know about stupid ignorant politicians

**Nakamura, Gayle M**

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**From:** margo margo <assistant4dr@gmail.com>  
**Sent:** Friday, June 24, 2022 2:45 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Stop the release of mosquitoes injected with Wolbachia Bacterium

A full scope environmental impact study needs to be conducted before releasing mosquitoes injected with Wolbachia Bacterium into the environment.

As a resident of Hilo, I do not consent to this reckless experiment that may effect my health.

Sincerely,

Martha Powell  
145 Kamana St  
Hilo, HI 96720

## **Nakamura, Gayle M**

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**From:** Emerald Gates <emeraldgates808@gmail.com>  
**Sent:** Friday, June 24, 2022 1:17 AM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.Testimony@hawaii.gov  
**Subject:** [EXTERNAL] stop the release of genetically modified mosquitos!

"We need to conduct a FULL scope Environmental Impact Study regarding this mosquito since there could be a substantial impact on public health and health for birds and other animals and the planet!"

## Nakamura, Gayle M

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**From:** Tina Lia <tinalia@live.com>  
**Sent:** Thursday, June 23, 2022 11:46 PM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] Opposition to the Release of Wolbachia Bacterium Mosquitoes

RE: Testimony Against Wolbachia Bacterium Mosquitoes Being Released In Hawaii

Attn.: Hawaii Department of Agriculture

I am opposed to the release of Wolbachia bacterium mosquitoes in the State of Hawaii. The health effects on the people, animals, and environment of these islands are unknown. There could be catastrophic health and environmental consequences to these proposed science experiments, and we may not know the extent of these consequences for years to come.

The Hawaii Department of Land and Natural Resources is claiming the mosquitoes planned for release in Hawaii are not genetically modified. However, a 2016 article from the New Yorker entitled "Could Genetically Modified Mosquitoes Save Hawaii's Endangered Birds?" directly relates the deployment of Wolbachia bacterium mosquitoes to the introduction of mosquitoes "genetically modified to become sterile." The article specifically lists Wolbachia bacterium mosquitoes as the second of three "genetic approaches," the third being extremely high-risk and controversial gene-drive technology:

"Any sentence that includes both the words 'genetic' and 'modify' causes controversy—often, as is the case with bird preservation in Hawaii, even before the facts are discussed. Many Hawaiians are particularly sensitive to what they see as the abuses of biotechnology. Critics argue that altering genes to save birds could cause extinctions and other unknown effects, and yet this technology may present the first genuine opportunity to protect these vanishing species.

There are essentially three genetic approaches that might save the birds of Hawaii. The first would be to introduce mosquitoes that have been genetically modified to become sterile, or are programmed to die quickly...

A related approach involves deploying Wolbachia bacteria, which can prevent viruses from entering the salivary glands of mosquitoes. The third approach is by far the most controversial, and the least likely to be used anytime soon: gene-drive technology."

<http://www.newyorker.com/news/daily-comment/could-genetically-modified-mosquitoes-save-hawaiis-endangered-birds>

Last month's Big Island Video News article "Mosquito Species to be Listed as Restricted Animals" includes a Hawaii State Department of Health description of the experiment as microinjection introduction of Wolbachia harvested from the cells of another insect species. The antibiotic tetracycline is used in the process:

"One way to generate mosquitoes with a different Wolbachia type is by clearing the naturally-occurring Wolbachia strain from the mosquitoes using the antibiotic tetracycline. Then Wolbachia can be harvested from cells of another insect species (this can be another mosquito or a non-mosquito species) and introduced into the cleared mosquitoes via microinjection."

<https://www.bigislandvideonews.com/2022/05/10/mosquito-species-to-be-listed-as-restricted-animals/>

The impact of these experiments is unknown, and the information provided to the public is insufficient. The informed consent of the human subject is absolutely essential. It is against the laws and codes of this nation and of the State of Hawaii to experiment on the people without our informed consent. Please reverse course and do not proceed with the release of Wolbachia bacterium mosquitoes in the State of Hawaii.

Aloha,  
Tina Lia  
tinalia@live.com  
(808) 298-6335

**Nakamura, Gayle M**

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**From:** X <sfdfts@gmail.com>  
**Sent:** Thursday, June 23, 2022 10:32 PM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] I STRONGLY OPPOSE the release of mosquito's with Wolbachia Bacterium

Aloha,

Hawaii has one of the most unique ecosystems on the planet.

Hawaii has a history of the adverse effects of man messing with this ecosystem, and has seen the demise of many native plants and species due to the mismanagement of our ecosystem. Mongoose were released to control rats, and now we have mongoose and a rat problem. We've seen sandalwood forests decimated and are now seeing disease ravage our Ohi'a trees meet their demise. And there are countless species that have been eradicated by the acts of man.

In a place as unique as Hawaii, I trust that there would be more care in managing our precious ecosystem. With the intent of HDOA to release mosquitoes with Wolbachia Bacterium, I can see that this is not the case.

I STRONGLY OPPOSE the release of mosquitoes with Wolbachia Bacterium.

V/R, Doug Pasnik

**Nakamura, Gayle M**

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**From:** Patricia Beekman <kaaina@mac.com>  
**Sent:** Thursday, June 23, 2022 10:00 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Vote No on Release of Wolbachia Mosquitoes

Aloha,

I oppose the release of mosquitoes injected with Wolbachia bacteria into Hawaii's wild. If a miscalculation of the predicted beneficial result occurs, the consequences could be disastrous for humans since mosquitoes inject them. At the very least, the public should first be made more widely aware of this proposed action and a thorough environmental impact study made *before* any release.

There are contradicting accounts of just exactly what the Wolbachia bacteria does that are worrisome. Do they sterilize mosquito eggs? Or keep dangerous viruses from dominating? Or...?

Unfounded testimony from a board member about the "brilliant" scientists who are behind this and therefore the board can safely put its faith in these "smart" specialists, is ridiculous. The Board's decision should be based on its own individually arrived, evidence-based conclusions *after* the public has been widely informed, has weighed in and a stringent EIS carried out.

Sincerely,

Patricia Beekman

**Nakamura, Gayle M**

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**From:** Gail Kelly <lifeorceenergies@tularosa.net>  
**Sent:** Thursday, June 23, 2022 9:42 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Testimony Regarding Wolbachia Bacterium

My name is Gail Kelly and I am a Biofeedback Specialist living on the island of Hawaii. I spent many years in the health care field and thus feel qualified to make the following statement. I do not agree with using a bacterium on the male mosquito without doing several long-term studies on the effect of this bacterium on human/animal life, transmission rates and reproduction. We are working in the dark if even one female mosquito were to bite a human being. This is not the professional and thoughtful behavior I expect from the Hawaii Department of Agriculture. We must do no harm! Mosquitos are known to be the most infectious when it comes to transmission of disease. Although the people on this project have good hearts, I feel like this project is being rushed and people are just crossing their fingers that it will work without any blowback. We cannot play God with nature in this way. Not only is this irresponsible, it could possibly cause injury to many other animals, people and the very same birds you are trying to protect. Thank you for your time.

**Nakamura, Gayle M**

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**From:** Kestrel Sutton <kestrelsutton@gmail.com>  
**Sent:** Thursday, June 23, 2022 9:01 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Aloha Re Wolbachia Bacterium

Aloha Hawaii Department of agriculture, we have heard that you folks are planning to :

**\*Hawaii Freedom Action #1~Release Mosquito **Injected Wolbachia Bacterium** that Sterilizes Eggs**

**We share our testimony with you here and now "NO", Thank you !!**

**This is tampering with the natural  
environment on our planet**

**It will effect all of the ecosystems here on the islands and will spread like wildfire  
everywhere else**

**Mosquitos are not an environmental hazard ...they are food for many amphibians  
insects,birds and fish !!**

**We claim testimony \* No !!**

**We are Family 7 testifying as a Vote:**

**Henry Sutton**

**Kestrel Sutton**

**Nakoa Sutton**

**Kyla Sutton**

**Mindy Goudarzi**

**Loretta Viecegli**

**Jeff Dome**

**Thank you for your time !**

Sent from my iPhone

**Nakamura, Gayle M**

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**From:** Judy Levy <judy.lotus.heart@gmail.com>  
**Sent:** Thursday, June 23, 2022 8:54 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] WHY ARE YOU CONSIDERING THIS RIDICULOUS EXPERIMENT??!!??

Is this why we eagerly supported the formation of a Dept. of AG, so more EVIL SCIENTISTS can keep messing with nature and EXPOSING US LOCAL PEOPLE TO MORE POISONOUS CHEMICALS!

I'm a small kine farmer in Haiku....we have LOTS of mosquitoes in Haiku. Nobody dies from mosquito bites, but WHO KNOWS WHAT YET ANOTHER TOXIC CHEMICAL ADDED TO OUR ALREADY CHEM-POLLUTED AIR....i.e. glyphosate being sprayed all the way down the Hana highway and IN OUR SKIES!!??

Why doesn't the new Dept of AG do something BENEFICIAL....SOMETHING WE'VE ALL DEMANDED AND GET THE PONO WATER RIGHTS BACK TO THE LOCAL PEOPLE TO GROW HEALTHY FOOD!!

NUFF ALREADY....do something GOOD!

DO NOT USE MY TAX DOLLARS FOR THIS!!

*Judy Levy*

*Haiku, Maui*

*(808)- 269-7762 cell*

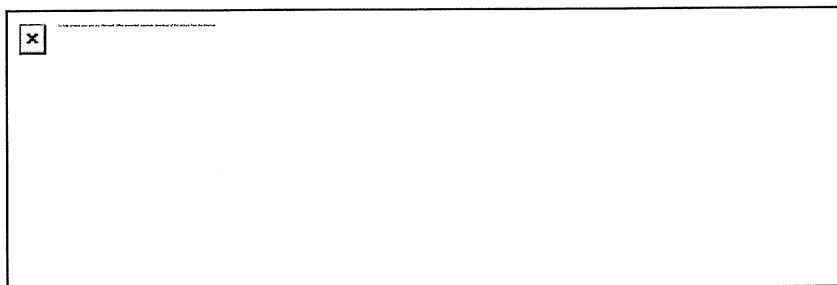
*Celebrating Life.... Creating Precious Moments*

## Nakamura, Gayle M

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**From:** Joelle Seashell <housserepd21@gmail.com>  
**Sent:** Thursday, June 23, 2022 8:51 PM  
**To:** HDOA.PQ.TESTIMONY; HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Stop the release of Genetically Modified Mosquitos

This is absolutely unacceptable. As one of The People I call for a Full Scope environmental Impact Study.  
Do NOT release these abominations on our islands.



**Nakamura, Gayle M**

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**From:** Victor Muh <victor.muh@gmail.com>  
**Sent:** Thursday, June 23, 2022 8:38 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Opposed to Release of Genetically Modified Mosquitos

I demand a FULL SCOPE ENVIRONMENTAL STUDY before even considering the release of genetically modified mosquitoes into our environment.

Mahalo for your time and consideration,

Victor Muh

## Nakamura, Gayle M

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**From:** Leslie M <lesms2021@gmail.com>  
**Sent:** Thursday, June 23, 2022 8:17 PM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] Release Mosquito Injected Wolbachia Bacterium that Sterilizes Eggs

Dear HDOA,

We are writing to express our concern and opposition to the plan to release these mosquitoes into the environment.

We were taught that every living thing has its place in the ecosystem no matter how pesky, and if you remove one, it affects many other living things-which can have unintended consequences.

Why is it just okay to mess with nature, inadequately test things, and then just release them into human beings, or the environment?

What is going to be the effect on the environment with the release of these mosquitoes on the reptiles, fish, birds and plants, each of which needs the others to survive?

What are going to be the effects on humans that depend on eating fish, fowl and plants to survive?

We need to have a FULL SCOPE Environmental Impact Study before you go and release these things into the environment!

Where are your studies? What is the "science" that justifies doing this?

Again, we are opposed to this plan and are requesting this be discontinued as you may be doing irreparable damage to the environment, plants, animals, and humans.

Thank you.

Let them know we need a FULL scope

## Nakamura, Gayle M

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**From:** Rich Kelly <nm.richkelly@gmail.com>  
**Sent:** Thursday, June 23, 2022 8:11 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] testimony

Don't modify the mosquitoes

**Nakamura, Gayle M**

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**From:** Dan Hahn <danhahn888@gmail.com>  
**Sent:** Thursday, June 23, 2022 6:03 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Mosquitoes

Aloha

To introduce a new mosquito species is not a good idea to say the least. Can we please learn from our past just once in this subject. Stop with bringing invasive species to the island, everything will get more unbalanced. We need to balance out what we are already dealing with. You cause more harm, especially since you haven't gathered enough evidence. Cease and desist immediately.

Mahalo

Dan Hahn

Sent from my iPhone

## Nakamura, Gayle M

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**From:** Ka'imi Nicholson <mknaloha@gmail.com>  
**Sent:** Thursday, June 23, 2022 5:57 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] please prevent the release of mosquitos injected with wolbachia bacterium.

Aloha dear Hawaii Dept of Agriculture members,

Please do not allow release of mosquitos injected with Wolbachia Bacterium. There are no studies available of the dangers and risks involved. For example, if a female is accidentally released, what will happen to humans who are bitten? What happens to the birds, whom we *do want to save*, if they're bitten by a mosquito that sterilizes eggs?

We have no problems here with dengue fever, chikungunya, Zika fever, Mayaro and yellow fever viruses. There is not a good enough reason to take these risks.

The CDC says, "There is no data to suggest that *Wolbachia* bacteria cause any harm to people or animals or the environment." (<https://www.cdc.gov/mosquitoes/mosquito-control/community/sit/wolbachia.html>)

but there are *no studies cited, no references at all listed*. How can we trust that the CDC is following the science when there is no science listed?

I do not trust the word of the CDC, there is much evidence available to know that the CDC cannot be trusted to "follow the science" for the public good.

*For example:*

In April, the CDC [published](#) impractical, [absurdly restrictive recommendations](#) for summer camps, including a requirement that kids wear face masks during outdoor activities, which infectious disease experts [slammed](#) as "cruel," "irrational," and "unfairly draconian."

Three days after the CDC issued its widely ridiculed camp guidelines, CDC Director Walensky [said](#) "less than 10 percent of

documented transmission[s], in many studies, have occurred outdoors." As critics such as *New York Times* columnist [David Leonhardt](#) and *Reason* science correspondent [Ronald Bailey](#) pointed out, that statement was true but highly misleading, since it implied that outdoor transmission's share of infections is close to 10 percent—a figure that may be off by two orders of magnitude.

The [study](#) that Walensky cited to back up her estimate, which she [misrepresented](#) in several significant ways, was inconsistent with the notion that outdoor transmission accounts for anything like 10 percent of infections. The actual number may be as low as [0.1 percent](#). <https://reason.com/2021/05/19/why-americans-should-not-trust-the-cdcs-covid-19-advice/>

Please protect our birds by preserving all natural habitat, not by adding another toxin to their environment.

*Mahalo nui for your time & kind consideration.*

*me ke aloha,*

Ka'imi Nicholson

***Spirit of Aloha*** Hawaii Weddings  
*Spirit of Aloha* Hawaii Weddings  
[www.spiritofalohahawaiiweddings.com](http://www.spiritofalohahawaiiweddings.com)

**Rev. Ka'imi Nicholson 808-372-2082**  
*It is my joy to serve*

**He punawai kahe wale ke aloha**  
*Love is a spring that flows boundlessly*

## Nakamura, Gayle M

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**From:** rhy o'drinnan <rhy@leperkhanz.com>  
**Sent:** Thursday, June 23, 2022 5:11 PM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] Stop genetic modification. And mosquitos

It's absolutely absurd that we are releasing genetically modified organisms and genetically modifying ourselves absent long-term studies and data.

As the former covid-19 surge response logistics coordinator for the entire state of Hawaii at the department of health: I strongly advise you to stop any and all experimentation with genetic modification, including releasing genetically modified mosquitoes.

Hawaii is a unique and isolated ecosystem with its own special picadillos and difficult to maintain equilibrium. Do not release genetically modified mosquitoes!!!

Who is funding this? And who has gotten kicked backs from whatever corporation or agency is attempting to do this insanely risky venture?

rhY thornton  
Former DOH

## Nakamura, Gayle M

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**From:** Marlies Lee <marlieslee@yahoo.com>  
**Sent:** Thursday, June 23, 2022 4:58 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Mosquitoes

Aloha,

Why do you want to release mosquitoes 🦟?

How safe is this?

Hawaii made a mistake of bringing mongoose to kill rats and what have we got?

Let nature be

Marlies Lee  
Kailua-Kona

Sent from my iPhone

## Nakamura, Gayle M

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**From:** Ainaman@protonmail.com  
**Sent:** Thursday, June 23, 2022 4:55 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Testimony opposing mosquito release and possible Board conflicts of interest.

Hello,  
This foolish decision on releasing mosquitos is being made by a seriously conflicted board.  
Better to deny the permit and avoid lawsuits and possible fines and jail time, and malama Aina instead of endangering it.  
Aloha,  
Robert G. Roosen, PhD

Sent from Proton Mail for iOS

**Nakamura, Gayle M**

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**From:** Leah "Lee" Aquino <aloha.leahkristine@gmail.com>  
**Sent:** Thursday, June 23, 2022 4:13 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Oppose Mosquito Release

To Whom it May Concern,

Hawaii has a unique and very special ecosystem. The release of other species of animals, plants, and insects in the past haven't always gone according to plan. A thorough impact study is needed before the proposed mosquito release.

Thank you,  
Leah Aquino  
Kaunakakai, HI

## Nakamura, Gayle M

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**From:** Gail Kelly @ Life Force Energies <lifeforceenergies@tularosa.net>  
**Sent:** Thursday, June 23, 2022 3:33 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Testimony Regarding Wolbachia Bacterium

My name is Gail Kelly and I am a Biofeedback Specialist living on the island of Hawaii. I spent many years in the health care field and thus feel qualified to make the following statement. I do not agree with using a bacterium on the male mosquito without doing several long-term studies on the effect of this bacterium on human/animal life, transmission rates and reproduction. We are working in the dark if even one female mosquito were to bite a human being. This is not the professional and thoughtful behavior I expect from the Hawaii Department of Agriculture. We must do no harm! Mosquitos are known to be the most infectious when it comes to transmission of disease. Although the people on this project have good hearts, I feel like this project is being rushed and people are just crossing their fingers that it will work without any blowback. We cannot play God with nature in this way. Not only is this irresponsible, it could possibly cause injury to many other animals, people and the very same birds you are trying to protect. Thank you for your time.

Sent from [Mail](#) for Windows

**Nakamura, Gayle M**

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**From:** Yahoo Account <jcuparts@yahoo.com>  
**Sent:** Thursday, June 23, 2022 3:29 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] No 🦟 to releasing Mosquitos in Hawaii

I am testifying against the idea of releasing GMO mosquitos in Hawai'i. What would be the health impacts to people who are bitten by female mosquitoes? If these mosquitoes cause infertility to other mosquitoes will they cause infertility in our native bird populations? Why does Hawaii's Agricultural department continue to make such careless decisions with zero thought or studies done? This seems to be like the same decision made about bringing mongoose to control the rat population. Bringing in these new mosquitoes into our environment cannot be done without doing a Full Scope Environmental Impact Study! It is absolutely reckless to just make a hair brain decision like this without considering and knowing ALL of the possible consequences.

A concerned resident,  
Jacob Medina

Sent from my iPhone

## Nakamura, Gayle M

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**From:** Carolina Visser <carolinavisser11@gmail.com>  
**Sent:** Thursday, June 23, 2022 3:21 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Mosquito issue

Releasing genetically engineered mosquitos in Hawaii is a dangerous game of Russian Roulette. We can live with our mosquitos. There is no problem. But you could create huge problems with this senseless irresponsible proposal. Please look at real problems we have. Like we should grow more food on the island. Organic sustainable agriculture. Thanks. Carolina Visser Sent from my iPhone

**Nakamura, Gayle M**

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**From:** Ka'imi Nicholson <mknaloha@gmail.com>  
**Sent:** Thursday, June 23, 2022 3:02 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Please prevent the release of mosquitos Injected with Wolbachia Bacterium

Aloha HDOA Board Members,

Please do not allow release of mosquitos injected with Wolbachia Bacterium. There are no studies available of the dangers and risks involved. For example, if a female is accidentally released, what will happen to humans who are bitten? What happens to the birds, whom we *do want to save*, if they're bitten by a mosquito that sterilizes eggs? We have no problems here with dengue fever, chikungunya, Zika fever, Mayaro and yellow fever viruses. There is not a good enough reason to take these risks. The CDC says, "There is no data to suggest that *Wolbachia* bacteria cause any harm to people or animals or the environment." (<https://www.cdc.gov/mosquitoes/mosquito-control/community/sit/wolbachia.html>) but there are *no studies cited, no references at all listed*. How can we trust that the CDC is following the science when there is no science listed?

I do not trust the word of the CDC, there is much evidence available to know that the CDC cannot be trusted to "follow the science" for the public good.

*For example:*

In April, the CDC published impractical, absurdly restrictive recommendations for summer camps, including a requirement that kids wear face masks during outdoor activities, which infectious disease experts slammed as "cruel," "irrational," and "unfairly draconian."

Three days after the CDC issued its widely ridiculed camp guidelines, **CDC Director Walensky** said "less than 10 percent of documented transmission[s], in many studies, have occurred outdoors." As critics such as *New York Times* columnist David Leonhardt and *Reason* science correspondent Ronald Bailey pointed out, that statement was true but highly misleading, since it implied that

outdoor transmission's share of infections is close to 10 percent—a figure that may be off by two orders of magnitude.

The study that Walensky cited to back up her estimate, which she misrepresented in several significant ways, was inconsistent with the notion that outdoor transmission accounts for anything like 10 percent of infections. The actual number may be as low as 0.1 percent. <https://reason.com/2021/05/19/why-americans-should-not-trust-the-cdcs-covid-19-advice/>

Please protect our birds by preserving all their remaining natural habitat, not by adding another toxin to their environment.

*Mahalo nui for your time & kind consideration.*

*me ke aloha,*

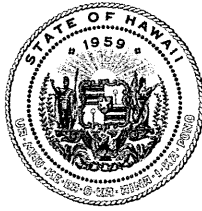
Ka'imi Nicholson

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Rev. Ka'imi Nicholson 808-372-2082  
*It is my joy to serve*

He punawai kahe wale ke aloha  
*Love is a spring that flows boundlessly*

DAVID Y. IGE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

June 23, 2022

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

TO: Board of Agriculture

FROM: David G. Smith, Administrator  
Division of Forestry and Wildlife  
Department of Land and Natural Resources

A handwritten signature in black ink, appearing to read "D. G. Smith", is written over the "FROM:" line.

SUBJECT: Support for Board of Agriculture's proposed order amending Chapter 4-71, Hawaii Administrative Rules "Non-Domestic Animal Import Rules" to add the Asian Tiger Mosquito, *Aedes albopictus*, Yellow Fever Mosquito, *Aedes aegypti*, and the Southern House Mosquito, *Culex quinquefasciatus*, to the List of Restricted Animals, Part A, and set permit conditions to allow the importation and field release of male *Culex quinquefasciatus* inoculated with incompatible strains of *Wolbachia* bacteria.

The Hawai'i Department of Land and Natural Resources (Department) stands in strong support of the proposal to add the Asian Tiger Mosquito, *Aedes albopictus*, Yellow Fever Mosquito, *Aedes aegypti*, and the Southern House Mosquito, *Culex quinquefasciatus*, to the List of Restricted Animals, Part A. Placing these species on the List of Restricted Animals, Part A as well as establishing permit conditions for importation and field release of incompatible male southern house mosquitoes, are integral steps towards the eventual use of incompatible male mosquitoes for the benefit of our native forest birds and public health. The functional extinction of multiple Hawaiian forest bird species is likely within the next two to five years if intervening measures of mosquito control are not taken.

Mosquitoes are not native to Hawai'i and these biting insects are not only a nuisance but spread diseases that threaten public health and native wildlife. The primary threat to native Hawaiian birds is avian malaria, transmitted by a non-native vector, the southern house mosquito. Protection of our remaining native forest birds is one of the highest priorities for the Department. Federally endangered forest birds on Kaua'i and statewide have rapidly declined in the last 20 years and have reached perilously low numbers in the last two years. Surveys on Kaua'i in 2018 found only 454 'akikiki, and only 1162 'akeke'e were estimated to still exist in the wild. On Maui, surveys estimated only 1,768 'akohekohe and 152 kiwikiu remained in 2017.

Low temperatures at high elevations have historically limited the spread of mosquitoes and the reproduction of malaria, which has a strict thermal limit. However, climate conditions in Hawai'i are changing rapidly due to global warming, allowing mosquitoes to move into higher elevation

areas that were formerly mosquito-free and malaria-free. Given these dire circumstances, the Department strongly supports using mosquitoes with incompatible *Wolbachia* bacteria for landscape-scale mosquito control in Hawai'i to prevent the extinction of multiple species of Hawaiian forest birds. This solution is already being utilized elsewhere in the U.S. and internationally to suppress populations of mosquitoes of public health concern. The Department has been working to facilitate the planning, research, and development of the Incompatible Insect Technique (IIT) utilizing *Wolbachia* bacteria as a tool for landscape-scale control of the southern house mosquito in Hawai'i since 2016, and the urgency of this work is heightened every passing year as populations of our unique native species continue to plummet. It is notable that this IIT approach does not utilize genetic engineering or genetic modification of any kind, but instead relies on the mosquitoes' existing relationship with a naturally occurring bacteria that is found in over 60% of terrestrial arthropods.

The southern house mosquito was first introduced to the Hawaiian Islands in 1826, and since then has become established across the State, from the furthest reaches of Papahānaumokuākea Marine National Monument in the Northwest Hawaiian Islands to high elevation forests on Mauna Kea. The application of traditional chemical controls for mosquitoes in forest reserves and other natural areas is impractical and causes unacceptable non-target impacts, whereas IIT carries no non-target risks to native species, humans, or the environment. Furthermore, while mosquitoes are used opportunistically as prey items, no plant or animal species native to Hawai'i are dependent on their presence for survival. The control of mosquito populations in Hawaiian forests would thus cause no negative impacts on native species.

The permitted import of incompatible male southern house mosquitoes into Hawai'i would allow DLNR to advance research and development of IIT to meet the requirements for U.S. Environmental Protection Agency (EPA) regulatory approval and enable eventual application for the benefit of public health as well as for conservation in Hawai'i. It is important to note that no releases will occur in Hawai'i until DLNR and partners secure all appropriate Federal and State approvals from the EPA and the Hawaii Department of Agriculture, and complete environmental compliance under the National Environmental Policy Act and Hawaii Environmental Policy Act. Additionally, the Department is actively involved in the multi-agency Birds not Mosquitoes Steering Committee (BNM), which is pursuing community engagement and public outreach. Public comments submitted to the Advisory Committee on Plants and Animals earlier this month reveal the breadth of misinformation relating to this approach. The Department and BNM remain committed to pursuing community engagement, education and outreach, to ensure that the concerned public has access to accurate information and is provided with ample opportunity to learn about the project as utilizing this safe, targeted tool appears increasingly possible.

## Nakamura, Gayle M

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**From:** Eric B <konggsss@yahoo.com>  
**Sent:** Thursday, June 23, 2022 2:15 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Testimony in opposition of Wolbachia Mosquito permit for Dept of Agriculture

Aloha,

I strongly oppose the import and release of any lab created/alterd Mosquitos in Hawaii, this is an experiment that has unknown consequences and could cause more harm to our ecological system and human health.

Horizontal transmission between unrelated host species is a proven phenomenon in Wolbachia. Studies have demonstrated that genetic sequences, ranging in size from single genes to entire bacterial genomes, have been transferred from Wolbachia to many of their insect hosts, and its effect on disease transmission is variable and potentially dangerous. <https://www.pnas.org/doi/10.1073/pnas.222228199>

I understand these are not GMO mosquitoes, but it seems there is ability to alter DNA thru the Wolbachia thru horizontal gene transfer.

Also of concern is this observation of Wolbachia-induced enhancement of a human pathogen in mosquitoes, suggesting that caution should be applied before releasing Wolbachia-infected insects as part of a vector-borne disease control program.

[Wolbachia Enhances West Nile Virus \(WNV\) Infection in the Mosquito Culex tarsalis](#)



### Infection in the Mosquito Culex...

Author Summary Current methods to control mosquitoes and the pathogens they transmit are ineffective, partly due...

Example of side effects with the release of GM mosquitoes in Brazil.

The research was published in the journal [Scientific Reports](#).

Source: [Yale University](#)

[Failed GM mosquito control experiment may have strengthened wild bugs](#)



### **strengthened wild bugs**

An experimental pest control method using genetically-modified mosquitoes has gone wrong, mixing mutant genes in...

Birds have been known to gain immunity from avian malaria and pass on those genes to their offspring, that is the most viable form of immunity that no lab can replicate.

Mahalo,  
Eric Bjerke

**Nakamura, Gayle M**

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**From:** Bart Smith <northshoreroadxxx@gmail.com>  
**Sent:** Thursday, June 23, 2022 1:48 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Genetically Modified Mosquitos

Dear Sirs or Madam

Please do not do this. It always sounds great on paper. Like the mongoose and the toad.  
When will we ever learn?

It always sounds so scientific and there is always money involved to pave the way to these experiments.

There have been no long range testing on the outcome or if that accidentally altered female bites a human or bird and releases some sort of altered material into our blood.

I am totally against this.

Sincerely,  
Dr. Robert B. Smith

Aloha Chairperson Shimabukuro-Geiser and Board Members:

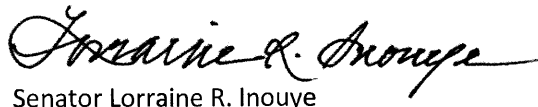
I, Senator Lorraine R. Inouye (District 4 — Hilo, Hāmākua, Kohala, Waimea, Waikōloa, Kona), **strongly support the critical and important step of listing, allowing importation, and establishing permit conditions for field release** of southern house mosquito (*Culex quinquefasciatus*), Asian tiger mosquito (*Aedes albopictus*), and yellow fever mosquito (*Aedes aegypti*). Placing the mosquitoes on the List of Restricted Animals (Part A), allowing for importation of lab-reared strains inoculated with *Wolbachia*, and establishing permit conditions for the import and field release of the lab-reared strains of *Wolbachia*-inoculated mosquitoes are **all critically needed for saving Hawaiian honeycreepers**.

Avian diseases transmitted by non-native mosquitoes pose the greatest threat to the survival of Hawaiian honeycreepers. Rising global temperatures are allowing these mosquitoes to invade the last forested strongholds for our honeycreepers. The Critically Endangered 'akeke'e and 'akikiki, on Kaua'i, are experiencing declines of 90 percent or more and could quickly become extinct without urgent action. On East Maui, the kiwikiu and 'ākohekohe face comparable threats of extinction. **Landscape-control of mosquitoes is the most urgent conservation problem in Hawai'i**, and if the disease cycle is not broken many other honeycreeper species will follow these four into extinction, irreparably losing crucial parts of Hawai'i's biological diversity and cultural richness.

The actions requested by the Hawai'i Department of Land and Natural Resources and Hawai'i Department of Health are a critical step towards saving our endangered forest birds using *Wolbachia*-inoculated mosquitoes that will function as mosquito "birth control." This technique is **NOT** a genetic method and is **NOT** a genetically modified-organism (GMO). This approach, the Incompatible Insect Technique (IIT), is being safely used in 15 different countries, including the continental U.S., to suppress mosquito populations. *Wolbachia* is a very common bacteria in Hawai'i and worldwide, and a different strain is already widely present in Hawaiian mosquitoes. Only male mosquitoes will be released, so the released mosquitoes will not bite the birds (or humans), and cannot transfer the bacteria to any other species.

Mahalo for your support in protecting our treasured Hawaiian honeycreepers.

Sincerely,

A handwritten signature in black ink, reading "Lorraine R. Inouye". The signature is fluid and cursive, with the first name being the most prominent.

Senator Lorraine R. Inouye

**Nakamura, Gayle M**

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**From:** Michael Kawa <kaliforniakoi@gmail.com>  
**Sent:** Thursday, June 23, 2022 1:18 PM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] No mosquito release

Please do not let out a mosquito that is not properly tested! This scares me, I am a father that has children that could possibly be bitten by this man made monster if they have children they come out with a some kind of defective child due to this mosquito I would be absolutely horrified.

Mistakes happen all the time,  
There needs to be long-term studies before we can allow this to be put out into the wild I am not OK with this I feel like this is against every single right as a human being do not allow this mosquito out into public or into the wild whatsoever end of story please listen to me please listen to my children's cries my children's children's possible children's tries before they turn out to have half mosquito DNA inside them this is wrong please listen to my children's children's cry's!

**Nakamura, Gayle M**

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**From:** debra Engel <nahikuhawaii@gmail.com>  
**Sent:** Thursday, June 23, 2022 1:16 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Mosquito experiment

This is ludicrous .

This is just another way for the left to release another so called virus that they have most likely engineered, just like c#VD 1 9. And om I cron... we know that was not a c#VD VARIant.

The HDOA BOARD has not asked the public regarding this have they? The public SHOULD be informed before ANY MOSQUITOS ARE RELEASED... Who knows what this will lead to in regards to our forests?

Who came up with this idea in the first place?

Debra engel

Wailuku, maui.

**Nakamura, Gayle M**

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**From:** Steve O'Neill <son@2oneills.us>  
**Sent:** Thursday, June 23, 2022 1:04 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Wolbachia Bacterium

I am writing to ask you to stop this insane idea. **Wolbachia Bacterium being put into mosquitoes has not been tested and no one knows the possible harmful effects of this, on humans and other animals.**

**I respectfully ask that you stop this now.**

**Regards, Steve and Linda O'Neill**

## Nakamura, Gayle M

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**From:** Halina Ngo <polishgirl\_hawaii@icloud.com>  
**Sent:** Thursday, June 23, 2022 1:03 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Environmental impact study is the rational response to this attempt to release of gmo mosquitoes

Aloha,

Our Hawaii small and fragile ecosystems must be protected from exposure to gmo products I.e., male mosquitos. There is no good reason, except unnecessary, nonchalant, frankly big interest group experiment on us.

There are **NO studies of the dangers** if a female gets out and **what happens to humans** if they are bitten. What happens to the birds, we want to save, if they're bitten by a mosquito that sterilizes eggs?

**This is Insanity worse than bringing mongoose to Hawaii!**

We need to conduct a **FULL scope Environmental Impact Study** regarding this mosquito since there could be a substantial impact on public health and **health for birds and other animals**.

**Protect yourselves and our AINA**

**Mahalo.**

## Nakamura, Gayle M

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**From:** Michelle Melendez <michelle@blossominerwellness.com>  
**Sent:** Thursday, June 23, 2022 12:09 PM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] NO to Mosquitos that are injected with bacterium

Aloha Hawaii Department of Agriculture,

Your heart is in the right place but you're wanting to play God and Mother Nature and that WILL come back to bite us all!

Please **do not release** these mosquitos that you've injected with wolbachia bacterium. We **need long-term studies** of the effects if something goes wrong.

We need to know if a female gets out and bites people, what happens?

If she bites birds, what happens?

What are possible effects to the land?

There are too many questions. **You can't release something that has no long-term studies.**

Mosquitos are the **ONLY insect that carry diseases that affect and kill people.** Being so nonchalant about the dangers is extremely terrifying to me!

We need a FULL spectrum study before you release something that we can't go back from if something goes wrong. AND something CAN go wrong!

You are putting EVERYONE at RISK!

DO NOT RELEASE THIS MOSQUITO!

Mahalo,  
Michelle Melendez  
Fitness and Wellness Expert Since 1996  
Author Of The Best Selling and 4x Award Winning Book,  
*End Dieting Hell: How to find peace in your body and release the weight*  
Phone: 1.866.339.4438  
<https://blossominerwellness.com/>  
Order your copy of [End Dieting Hell Click Here](#)

**Nakamura, Gayle M**

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**From:** Carolina Visser <carolnavisser11@gmail.com>  
**Sent:** Thursday, June 23, 2022 12:03 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Mosquito issue

Aloha. With all due respect; why even thinking of doing this. Hawaii has mosquitos. We live with them. It's okay. Playing Russian roulette with the release of a freak mosquito on an island in the pacific is insane. And totally unnecessary. Thank you.  
Carolina Visser

Sent from my iPhone

**Nakamura, Gayle M**

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**From:** Matt Drayer <chefmattdre@gmail.com>  
**Sent:** Thursday, June 23, 2022 12:01 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] No more experiments please

Please do not release engineered mosquitoes into our already unstable environment. There are no long term studies on the effects of this in humans. You can not treat the population of hawaii as a test bed, we will not tolerate it.

Sent from my iPhone



**Date:** June 28, 2022  
**To:** Board of Agriculture  
**From:** Christy Martin, Program manager, Coordinating Group on Alien Pest Species  
**RE:** Testimony in support of Agenda items IV C 1 and 2, the proposed listing of multiple mosquito species on the Restricted A list, etc.,

On behalf of the Coordinating Group on Alien Pest Species, please accept this letter in strong support of the listing of the Asian tiger mosquito (*Aedes albopictus*), yellow fever mosquito (*Aedes aegypti*), and the southern house mosquito (*Culex quinquefasciatus*) on the List of Restricted Animals (Part A) and the establishment of permit conditions for the importation of lab-reared species of the same that are inoculated with *Wolbachia* strains for the purpose of incompatible mating, and the field release of the same by agencies, if listed.

Invasive species has been described as “the single greatest threat to Hawai‘i’s economy, natural environment, and to the health and lifestyle of Hawai‘i’s people”. Mosquitoes and the diseases they vector are a global public health issue. Hawai‘i has been fortunate in its mosquito-free status until the 1800’s, and responses to serious public health diseases such as dengue have been successful to-date. However, the increase in the number and types of mosquitoes AND mosquito-vectored diseases in Hawai‘i is a tremendous risk to public health that would have repercussions to the visitor industry and every aspect of our daily lives. The use of male mosquitoes—with it’s existing *Wolbachia* strain replaced with a different *Wolbachia* strain—is a responsible use of this non-chemical mosquito control tool that could be used to suppress mosquitoes more effectively across larger areas than the current door-to-door breeding site-reduction work.

In addition to public health impacts, birds in Hawai‘i continue to be impacted by avian malaria and pox, diseases vectored by non-native mosquitoes. Widespread birds like non-native zebra doves and other common birds serve as a reservoir for these diseases, which are picked up by mosquitoes and spread to other birds. Many of these non-native birds are sickened by these diseases but can survive. In contrast, the native Hawaiian honeycreepers are much more susceptible and unable to survive these infections. This constant and heavy disease cycle is constantly occurring at low elevations where the climate is warm enough for these mosquitoes to breed, while higher elevation forests have served as a largely-mosquito and disease-free habitat for native Hawaiian honeycreepers in decades past. After several years of study, it has become clear that the warming climate has been making upper elevation forests warm enough for mosquitoes to breed, imperiling the last refuge for these birds, some of which are critically endangered. This is currently the ONLY available technology that can start protecting these birds.

The addition of these mosquito species to the Restricted A list is an important step in the work of multiple agencies and environmental conservation organizations to advance available and effective non-chemical methods that have been tested and proven worldwide for large-scale mosquito control. The listing of these species on the Restricted A list will provide a regulatory pathway for these agencies to apply for permits for the importation and release of these lab-reared male mosquitoes, inoculated with *Wolbachia* bacteria strains.

Thank you for the opportunity to submit this letter in strong support of these agenda items, which supports our collaboratively-produced [Strategic Plan](#) priorities, particularly Strategy 4, *Large-scale control of high-impact invasive species*.

Aloha,  
Christy Martin, Program manager  
Coordinating Group on Alien Pest Species  
[www.cgaps.org](http://www.cgaps.org)  
christym@rocketmail.com  
(808) 722-0995

## Nakamura, Gayle M

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**From:** Julia Diegmann <julia.diegmann@gmail.com>  
**Sent:** Wednesday, June 22, 2022 7:13 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] STRONG SUPPORT "Testimony - Hawai'i Board of Agriculture Action on Proposal to Add Three Mosquito Species to List of Restricted Animals (Part A)

To whom it may concern

I am a resident of Kaua'i and am writing to express my strong support for the approval of the import permit. In the last 10 years, the populations of two of Kaua'i's native endangered forest birds have declined over 90% due to Avian Malaria transmitted by introduced mosquitoes and these birds are now at the brink of extinction. We need to act now to save them and this permit is the first step of many in this process.

Respectfully,

- Julia Diegmann.

Kalāheo, Kaua'i

**LATE TESTIMONY – ITEM C. 1 & 2**  
**BOA MEETING – JUNE 28, 2022**

**REC'D AFTER THE DEADLINE OF**  
**FRIDAY, JUNE 24, 2022, AT 4:30 P.M.**

## Nakamura, Gayle M

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**From:** Makana Paris <ahcc.gov@gmail.com>  
**Sent:** Sunday, June 26, 2022 8:13 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Cc:** AHCC Pelekikena; Dre Kalili; Roth Puahala; Annelle Amaral; Marilyn Leimomi Khan  
**Subject:** [EXTERNAL] Support IV.C1 & IV.C2 PLANT INDUSTRY REQUEST REGARDING MOSQUITO CONTROL  
**Attachments:** AHCC-Testimony-BOA-June-28-2022.pdf

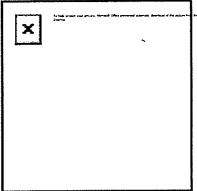
Aloha:

Please find the Association of Hawaiian Civic Club's testimony in support on Board June 28, 2022 Agenda Items IV.C1 and IV.C2.

Me ke aloha,

--

A. Makana Paris  
Government Relations Chair  
Association of Hawaiian Civic Clubs





Phyllis Shimabukuro-Geiser, Chairperson  
Board of Agriculture

*Pō'akahi, June 28, 2022*  
Hale Waiolama Board Room  
1428 South King Street  
Honolulu, Hawaii 96814-2512

*VIA EMAIL: HDOA.BOARD.TESTIMONY@HAWAII.GOV*

Subject: Support IV.C1 & IV.C2 PLANT INDUSTRY REQUEST REGARDING MOSQUITO CONTROL

Aloha Chairperson Shimabukuro-Geiser and Members of the Board:

The Association of Hawaiian Civic Clubs testifies in supports the proposed mosquito controls outlined in the following items:

IV.C1 - Request for: Approval of the Board of Agriculture's Proposed Order Amending Chapter 4-71, Hawaii Administrative Rules, "Non-Domestic Animal Import Rules," to add the Asian Tiger Mosquito, *Aedes albopictus*, Yellow Fever Mosquito, *Aedes aegypti*, and the Southern House Mosquito, *Culex quinquefasciatus*, to the List of Restricted Animals, Part A, Pursuant to HAR §4-71-4.2 for the Hawaii Department of Land and Natural Resources and Hawaii Department of Health.

IV.C2 - Provided the Southern House Mosquito, *Culex quinquefasciatus*, is Placed on the List of Restricted Animals, Part A, Allow the Importation of LabReared Strains of the Mosquito, *Culex quinquefasciatus* (Diptera: Culicidae), Inoculated with Strains of Wolbachia Bacteria, by Permit, For Immediate Field Release to Suppress Wild Populations of *Culex quinquefasciatus*, by the Hawaii Department of Land and Natural Resources and Provided the Southern House Mosquito, *Culex quinquefasciatus*, is Placed on the List of Restricted Animals, Part A, Establish Permit Conditions for the Importation and Immediate Field Release of Lab-Reared Strains of the Mosquito, *Culex quinquefasciatus* (Diptera: Culicidae), Inoculated with Strains of Wolbachia Bacteria to Suppress Wild Populations of *Culex quinquefasciatus* by the Hawaii Department of Land and Natural Resources.

At its special board meeting on June 25th, our Board adopted a resolution, which urges Federal State and Local Elected Officials to Support the Funding and Implementation of the use of Mosquito Birth Control to bring our Native Forest birds back from extinction and towards abundance. Our resolution acknowledges the devastating role mosquitos have had on the Native bird population, decimating many to the point of extinction and threatening others such as the 'akikiki, akeke'e, 'ākohekohe, 'i'iwi, and kiwīkiu. We support both public and private efforts to curb the mosquito population across the island to protect our remaining birds.

The Hawaiian Civic Club movement was founded in 1918 by Congressional Delegate Prince Jonah Kūhiō Kalaniana'ole with the creation of the Hawaiian Civic Club; the Association was formally organized in 1959 and has grown to a confederation of over sixty (60) Hawaiian Civic Clubs with more than 3,000 members located throughout the State of Hawai'i and the United States. The Association is the oldest Hawaiian community-based grassroots organization and advocates for improved welfare of Native Hawaiians in culture, health, economic development, education, social welfare, and nationhood; and perpetuates and preserves language, history, music, dance and other Native Hawaiian cultural traditions.

*Mahalo* for allowing us to share our *mana* 'o.

*Me ka 'oia'i'o,*

A handwritten signature in black ink, appearing to read 'Hailama V.K.K. Farden'.

Hailama V.K.K. Farden  
*Pelekikena*

# ***ASSOCIATION OF HAWAIIAN CIVIC CLUBS***

## ***A RESOLUTION***

### **URGING FEDERAL STATE AND LOCAL ELECTED OFFICIALS TO SUPPORT THE FUNDING AND IMPLEMENTATION OF THE USE OF MOSQUITO BIRTH CONTROL TO BRING OUR NATIVE FOREST BIRDS BACK FROM EXTINCTION AND TOWARDS ABUNDANCE**

WHEREAS, the native honeycreepers of Hawai‘i are of immense cultural and ecological value; and

WHEREAS, feathers from honeycreepers in ancient Hawai‘i were used to develop an artform of global excellence to adorn ali‘i with symbols of their power and authority, and were an integral part of Hawaiian culture; and

WHEREAS, Hawai‘i has the dubious status of the “bird extinction capital of the world”, as 95 of 142 endemic bird species have become extinct; and

WHEREAS, while once more than 50 different honeycreepers lived in Hawai‘i, today, only 17 species remain, twelve species are federally endangered or threatened, and the International Union for Conservation of Nature lists 19 as vulnerable or worse; and

WHEREAS, remaining birds such as the ‘akikiki, akeke‘e, ‘ākohekohe, ‘i‘iwi, and kiwīkiu face multiple threats, ranging from loss of their feeding and nesting areas to direct predation by invasive species, but especially non-native avian malaria transmitted by the non-native southern house mosquito; and

WHEREAS, the remaining honeycreepers species are mostly restricted to the cooler conditions in high-elevation native forests which have previously had limited mosquito abundance and disease transmission; and

WHEREAS, the southern house mosquito was introduced to Hawai‘i in 1826, became the vector for avian malaria that was introduced with non-native songbirds, and is not an integral part of any Hawaiian ecosystem; and

WHEREAS, as the climate in Hawai‘i continues to warm, this mosquito is expanding its range and encroaching on habitats where the last remaining populations of native forest birds persist; and

WHEREAS, additional extinctions of these irreplaceable forest bird species will occur if nothing is done; and

WHEREAS, Birds, Not Mosquitoes was founded as a multi-agency partnership working to save the native honeycreepers of Hawai'i from extinction by using a common, naturally-occurring bacteria as a "mosquito birth control" to suppress mosquito populations in Hawai'i; and

WHEREAS, *Wolbachia* is a naturally-occurring bacteria which is present in over half of all insect species worldwide, in many insects in Hawai'i, and including some mosquito species; and

WHEREAS, scientists have found that *Wolbachia* plays an important role in insect reproduction, because it can function like birth control, as male mosquitoes with one strain of *Wolbachia* can only successfully reproduce with females with the same strain of *Wolbachia*; and

WHEREAS, in a laboratory researchers can transfer an incompatible strain of *Wolbachia* into mosquitoes, rear large numbers of them, and then separate them by sex, so only male mosquitoes are released into the wild; and

WHEREAS, because male mosquitoes do not bite birds or people when released into the wild; and

WHEREAS, when the *Wolbachia* males mate with wild female mosquitoes the eggs laid do not hatch, thereby drastically reducing mosquitoes in our forests and potentially save our birds from extinction; and

WHEREAS, if this technique were expanded over time, it could bring some of our native honeycreepers not only back from extinction, but towards abundance; and

WHEREAS, Birds, Not Mosquitoes and their partners are seeking to secure the technology, deployment methods, funding, governmental approvals, and community support to successfully use this technique in Hawai'i.

NOW, THEREFORE, BE IT RESOLVED, by the Board of Directors of the Association of Hawaiian Civic Clubs at its Special meeting, in the malama of Kaaona and the rising of Kāne, this 25th day of June 2022, urging Federal, State, and Local elected officials to support the funding and implementation of the use of mosquito birth control to bring our native forest birds back from extinction and towards abundance; and

BE IT FURTHER RESOLVED, that a certified copy of this resolution be transmitted to U.S. Senator Brian E. Schatz, U.S. Senator Mazie Hirono, U.S. Representative Ed Case, U.S. Representative Kailani'i Kahele, U.S. Secretary of the Interior Deb Haaland, the Governor of the State of Hawai'i, the President of the State Senate, the Speaker of the State House of Representatives, the Chair of the State Senate and House subject matter committees on Hawaiian Affairs, Water, and Land, the Chair of the Board of Trustees of the Office of Hawaiian Affairs, and all County Councilmembers.

The undersigned hereby certifies that the foregoing Resolution was duly adopted in the malama of Kaaona and the rising of Kāne, on the 25th day of June 2022, at a special meeting of the Board of Directors of the Association of Hawaiian Civic Clubs.

Hailama V.K.K. Farden, President

**Nakamura, Gayle M**

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**From:** Patty Kupchak <kupchakk001@hawaii.rr.com>  
**Sent:** Sunday, June 26, 2022 8:02 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Testimony - Hawai'i Board of Agriculture Action on Proposal to Add Three Mosquito Species to List of Restricted Animals

I support the Importation of male Wolbachia-incompatible mosquitoes for release to suppress wild populations of southern house mosquitoes and the establishment of permit conditions for field trials.

More of our native birds will become extinct without a way to protect them from avian malaria especially with climate change allowing the southern house mosquitoes to move up into the last remaining high elevation areas where the birds can survive. The Wolbachia-incompatible mosquitoes are a possible answer to this problem that should be permitted for field trials.

Sincerely,  
Patricia Kupchak  
704 Ululani St  
Kailua, HI 96734

Sent from my iPad

## **Nakamura, Gayle M**

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**From:** Rosemary Bearden <rose.merry.g.b@gmail.com>  
**Sent:** Sunday, June 26, 2022 4:38 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Testimony - Hawai'i Board of Agriculture Action on Proposal to Add Three Mosquito Species to List of Restricted Animals

Aloha Chairperson Shimabukuro-Geiser and fellow members of the committee,

I am writing to express EXTREMELY STRONG SUPPORT for three of the recommended actions put forward by the Advisory Committee on Plants and Animals:  
Review the southern house mosquitoes for future placement on the List of Restricted Animals (Part A), that will allow import by permit; and, if placement on the list is approved, allow:  
- Importation of male Wolbachia-incompatible mosquitoes for release to suppress wild populations of southern house mosquitoes; and  
- Establish permit conditions for importation and release for field trials.

These actions are vitally important for halting the decline and extinction of our native birds, and will allow for the protection of our local families from countless mosquito borne diseases. These techniques have been available since the 1960s and have been used around the world to great effect, saving thousands of lives without the cost of non-target impacts such as pesticide based abatement.

Hawai'i had no mosquitoes until 1826, and by using technologies like these not only can we save our native birds from imminent extinction but we can also restore the quality of life of local families.

Mahalo for your time,  
Rosemary Bearden

**Nakamura, Gayle M**

---

**From:** Kealii Pang <kakuhihewa.president@gmail.com>  
**Sent:** Sunday, June 26, 2022 10:53 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Support for Agenda Item IV.C.2 BOA June 28th meeting  
**Attachments:** HDOA Wolbachia 20220625.pdf

Aloha,

Attached is support testimony for Agenda Item IV.C.2 of the Board of Agriculture Meeting on June 28, 2022.

--

**Benton Kealii Pang, *Pelekikena***

Ke One O Kākuhihewa - O'ahu Council of the Association of Hawaiian Civic Clubs

website: <http://www.kakuhihewa.org/>

cellphone: 808-349-3636



**KE ONE O  
KĀKUHIHEWA**

O'ahu Council of the  
Association of Hawaiian Civic Clubs

To: Phyllis Shimabukuro-Geiser, Chairperson, and Members of the Board of Agriculture

From: Benton Kealii Pang, President

Date: June 28, 2022

Re: JUNE 28, 2022 BOARD OF AGRICULTURE BOARD MEETING AGENDA ITEM IV.C.2. - SUPPORT

*Aloha Chair Phyllis Shimabukuro-Geiser and Members of the Board of Agriculture:*

Ke One O Kakuhihewa-O'ahu Council of the Association of Hawaiian Civic Club is writing in SUPPORT of agenda item IV.C.2 requesting to: (1) Provided the Southern House Mosquito, *Culex quinquefasciatus*, is Placed on the List of Restricted Animals, Part A, Allow the Importation of Lab-Reared Strains of the Mosquito, *Culex quinquefasciatus* (Diptera: Culicidae), Inoculated with Strains of *Wolbachia* Bacteria, by Permit, For Immediate Field Release to Suppress Wild Populations of *Culex quinquefasciatus*, by the Hawaii Department of Land and Natural Resources; and (2) Provided the Southern House Mosquito, *Culex quinquefasciatus*, is Placed on the List of Restricted Animals, Part A, Establish Permit Conditions for the Importation and Immediate Field Release of Lab-Reared Strains of the Mosquito, *Culex quinquefasciatus* (Diptera: Culicidae), Inoculated with Strains of *Wolbachia* Bacteria to Suppress Wild Populations of *Culex quinquefasciatus* by the Hawaii Department of Land and Natural Resources.

Many of our civic club members, 'ohana (families), and friends are Hawaiian cultural practitioners who gather plants and animal resources in the uplands of our beautiful island of O'ahu. Many of our native birds that reside there are considered 'aumakua (family guardians) to some of these 'ohana and the tradition of hulu manu (featherwork) has continued. We have participated in multiple meetings where we have become aware of the extinction crisis facing our native birds and our cultural traditions. We have also learned about the innovative work and research of the multi-agency partnership called "Birds, Not Mosquitoes" that is working to save the native honeycreepers of Hawai'i from extinction by using a common, naturally-occurring bacteria as a "mosquito birth control" to suppress mosquito populations in Hawai'i. We fully support this work and therefore request your support on this agenda item to allow for the deployment of these methods to successfully use in Hawai'i.

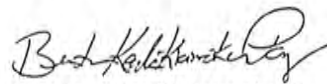
At its June 25th, 2022 meeting of the Association of Hawaiian Civic Clubs, for which we are a member, the board passed a resolution on this topic. The resolution entitled, **URGING FEDERAL STATE AND LOCAL ELECTED OFFICIALS TO SUPPORT THE FUNDING AND IMPLEMENTATION OF THE USE OF MOSQUITO BIRTH**

**CONTROL TO BRING OUR NATIVE FOREST BIRDS BACK FROM EXTINCTION AND TOWARDS ABUNDANCE** was passed unanimously and is attached for your reference.

Therefore, Ke One O Kākūhihewa-O'ahu Council of the Association of Hawaiian Civic Clubs respectfully requests your approval of this agenda item so that we can take the necessary steps to protect our honeycreepers not only back from extinction, but towards abundance and where our cultural traditions, such as hulu manu can continue for generations to come.

Ke One O Kākūhihewa-O'ahu Council, is a native Hawaiian organization made up of 24 Hawaiian civic clubs on the island of O'ahu. Our oldest member, Hawaiian Civic Club of Honolulu was established by Prince Jonah Kūhiō Kalaniana'ole on December 7, 1918.

Sincerely,

A handwritten signature in black ink, appearing to read "Benton Kealiikiamoku Pang".

Benton Kealiikiamoku Pang, President

# ***ASSOCIATION OF HAWAIIAN CIVIC CLUBS***

## ***A RESOLUTION***

### **URGING FEDERAL STATE AND LOCAL ELECTED OFFICIALS TO SUPPORT THE FUNDING AND IMPLEMENTATION OF THE USE OF MOSQUITO BIRTH CONTROL TO BRING OUR NATIVE FOREST BIRDS BACK FROM EXTINCTION AND TOWARDS ABUNDANCE**

WHEREAS, the native honeycreepers of Hawai'i are of immense cultural and ecological value; and

WHEREAS, feathers from honeycreepers in ancient Hawai'i were used to develop an artform of global excellence to adorn ali'i with symbols of their power and authority, and were an integral part of Hawaiian culture; and

WHEREAS, Hawai'i has the dubious status of the "bird extinction capital of the world", as 95 of 142 endemic bird species have become extinct; and

WHEREAS, while once more than 50 different honeycreepers lived in Hawai'i, today, only 17 species remain, twelve species are federally endangered or threatened, and the International Union for Conservation of Nature lists 19 as vulnerable or worse; and

WHEREAS, remaining birds such as the 'akikiki, akeke'e, 'ākohekohe, 'i'iwi, and kiwīkiu face multiple threats, ranging from loss of their feeding and nesting areas to direct predation by invasive species, but especially non-native avian malaria transmitted by the non-native southern house mosquito; and

WHEREAS, the remaining honeycreepers species are mostly restricted to the cooler conditions in high-elevation native forests which have previously had limited mosquito abundance and disease transmission; and

WHEREAS, the southern house mosquito was introduced to Hawai'i in 1826, became the vector for avian malaria that was introduced with non-native songbirds, and is not an integral part of any Hawaiian ecosystem; and

WHEREAS, as the climate in Hawai'i continues to warm, this mosquito is expanding its range and encroaching on habitats where the last remaining populations of native forest birds persist; and

WHEREAS, additional extinctions of these irreplaceable forest bird species will occur if nothing is done; and

WHEREAS, Birds, Not Mosquitoes was founded as a multi-agency partnership working to save the native honeycreepers of Hawai‘i from extinction by using a common, naturally-occurring bacteria as a "mosquito birth control" to suppress mosquito populations in Hawai‘i; and

WHEREAS, *Wolbachia* is a naturally-occurring bacteria which is present in over half of all insect species worldwide, in many insects in Hawai‘i, and including some mosquito species; and

WHEREAS, scientists have found that *Wolbachia* plays an important role in insect reproduction, because it can function like birth control, as male mosquitoes with one strain of *Wolbachia* can only successfully reproduce with females with the same strain of *Wolbachia*; and

WHEREAS, in a laboratory researchers can transfer an incompatible strain of *Wolbachia* into mosquitoes, rear large numbers of them, and then separate them by sex, so only male mosquitoes are released into the wild; and

WHEREAS, because male mosquitoes do not bite birds or people when released into the wild; and

WHEREAS, when the *Wolbachia* males mate with wild female mosquitoes the eggs laid do not hatch, thereby drastically reducing mosquitoes in our forests and potentially save our birds from extinction; and

WHEREAS, if this technique were expanded over time, it could bring some of our native honeycreepers not only back from extinction, but towards abundance; and

WHEREAS, Birds, Not Mosquitoes and their partners are seeking to secure the technology, deployment methods, funding, governmental approvals, and community support to successfully use this technique in Hawai‘i.

NOW, THEREFORE, BE IT RESOLVED, by the Board of Directors of the Association of Hawaiian Civic Clubs at its Special meeting, in the malama of Kaaona and the rising of Kāne, this 25th day of June 2022, urging Federal, State, and Local elected officials to support the funding and implementation of the use of mosquito birth control to bring our native forest birds back from extinction and towards abundance; and

BE IT FURTHER RESOLVED, that a certified copy of this resolution be transmitted to U.S. Senator Brian E. Schatz, U.S. Senator Mazie Hirono, U.S. Representative Ed Case, U.S. Representative Kailali‘i Kahele, U.S. Secretary of the Interior Deb Haaland, the Governor of the State of Hawai‘i, the President of the State Senate, the Speaker of the State House of Representatives, the Chair of the State Senate and House subject matter committees on Hawaiian Affairs, Water, and Land, the Chair of the Board of Trustees of the Office of Hawaiian Affairs, and all County Councilmembers.

The undersigned hereby certifies that the foregoing Resolution was duly adopted in the malama of Kaaona and the rising of Kāne, on the 25th day of June 2022, at a special meeting of the Board of Directors of the Association of Hawaiian Civic Clubs.

Hailama V.K.K. Farden, President

**Nakamura, Gayle M**

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**From:** Malia <malianob@gmail.com>  
**Sent:** Saturday, June 25, 2022 1:54 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] JUNE 28, 2022 BOARD OF AGRICULTURE BOARD MEETING AGENDA ITEM IV.C.2. - SUPPORT from MOKU O MANOKALANIPO  
**Attachments:** 2022 06 BOA - Birds Not Mosquitoes- Kauai Council.pdf

Aloha Chair Phyllis Shimabukuro-Geiser and Members of the Board of Agriculture.  
Attached is our testimony in SUPPORT of Agenda Item IV.C.2.

Mahalo,  
Malia Nobrega-Olivera  
Moku o Manokalanipō, Kauaʻi Council of the Association of Hawaiian Civic Clubs  
President

--

Malia Nobrega-Olivera  
Ka Lei o ka Lanakila  
Let's Partner to Work Towards a Healthy Lāhui  
<http://kaleiokalanakila.org>

**MOKU O MANOKALANIPŌ**  
**KAUA‘I COUNCIL OF THE ASSOCIATION OF HAWAIIAN CIVIC CLUBS**

Date: June 25, 2022

To: Phyllis Shimabukuro-Geiser, Chairperson, and Members of the Board of Agriculture

From: Moku o Manokalanipō, Kaua‘i Council of the Association of Hawaiian Civic Clubs  
Malia Nobrega-Olivera, President  
malianob@gmail.com

Re: JUNE 28, 2022 BOARD OF AGRICULTURE BOARD MEETING AGENDA ITEM IV.C.2. - SUPPORT

The Kaua‘i Council of the Association of Hawaiian Civic Club is writing in SUPPORT of this agenda item requesting to: (1) Provided the Southern House Mosquito, *Culex quinquefasciatus*, is Placed on the List of Restricted Animals, Part A, Allow the Importation of Lab-Reared Strains of the Mosquito, *Culex quinquefasciatus* (Diptera: Culicidae), Inoculated with Strains of Wolbachia Bacteria, by Permit, For Immediate Field Release to Suppress Wild Populations of *Culex quinquefasciatus*, by the Hawaii Department of Land and Natural Resources; and (2) Provided the Southern House Mosquito, *Culex quinquefasciatus*, is Placed on the List of Restricted Animals, Part A, Establish Permit Conditions for the Importation and Immediate Field Release of Lab-Reared Strains of the Mosquito, *Culex quinquefasciatus* (Diptera: Culicidae), Inoculated with Strains of Wolbachia Bacteria to Suppress Wild Populations of *Culex quinquefasciatus* by the Hawaii Department of Land and Natural Resources.

Many of our members, families, and friends are practitioners and gatherers in the uplands of our beautiful island of Kaua‘i where many of our native birds reside. We have participated in multiple meetings where we have become aware of the grave concerns regarding our native birds. We have also learned about the innovative work and research of the multi-agency partnership Birds, Not Mosquitoes that is working to save the native honeycreepers of Hawai‘i from extinction by using a common, naturally-occurring bacteria as a "mosquito birth control" to suppress mosquito populations in Hawai‘i. We support this work and therefore request your support on this agenda item which allows for the deployment of these methods to successfully use this technique in Hawai‘i.

The members of Kaua‘i Council has brought this to the attention of our umbrella organization called the Association of Hawaiian Civic Clubs. At our recent meeting on Saturday, June 25, 2022 we unanimously adopted the attached resolution,  
**URGING FEDERAL STATE AND LOCAL ELECTED OFFICIALS TO SUPPORT THE FUNDING AND IMPLEMENTATION OF THE USE OF MOSQUITO BIRTH CONTROL TO BRING OUR NATIVE FOREST BIRDS BACK FROM EXTINCTION AND TOWARDS ABUNDANCE.**

**MOKU O MANOKALANIPŌ**  
**KAUA‘I COUNCIL OF THE ASSOCIATION OF HAWAIIAN CIVIC CLUBS**

Therefore, Moku o Manokalanipō respectfully requests your approval of this agenda item so that we can take the necessary steps forward to bring some of our native honeycreepers not only back from extinction, but towards abundance.

The Hawaiian civic club movement was founded in 1918 by Congressional Delegate Prince Jonah Kūhiō Kalaniana‘ole with the creation of the Hawaiian Civic Club; the Association was formally organized in 1959 and in 1968, the Hawaiian Civic Clubs on the island of Kaua‘i organized Moku o Manokalanipō, the Kaua‘i Council of the Association of Hawaiian Civic Clubs.

# ***ASSOCIATION OF HAWAIIAN CIVIC CLUBS***

## ***A RESOLUTION***

### **URGING FEDERAL STATE AND LOCAL ELECTED OFFICIALS TO SUPPORT THE FUNDING AND IMPLEMENTATION OF THE USE OF MOSQUITO BIRTH CONTROL TO BRING OUR NATIVE FOREST BIRDS BACK FROM EXTINCTION AND TOWARDS ABUNDANCE**

WHEREAS, the native honeycreepers of Hawai'i are of immense cultural and ecological value; and

WHEREAS, feathers from honeycreepers in ancient Hawai'i were used to develop an artform of global excellence to adorn ali'i with symbols of their power and authority, and were an integral part of Hawaiian culture; and

WHEREAS, Hawai'i has the dubious status of the "bird extinction capital of the world", as 95 of 142 endemic bird species have become extinct; and

WHEREAS, while once more than 50 different honeycreepers lived in Hawai'i, today, only 17 species remain, twelve species are federally endangered or threatened, and the International Union for Conservation of Nature lists 19 as vulnerable or worse; and

WHEREAS, remaining birds such as the 'akikiki, akeke'e, 'ākohekohe, 'i'iwi, and kiwikiu face multiple threats, ranging from loss of their feeding and nesting areas to direct predation by invasive species, but especially non-native avian malaria transmitted by the non-native southern house mosquito; and

WHEREAS, the remaining honeycreepers species are mostly restricted to the cooler conditions in high-elevation native forests which have previously had limited mosquito abundance and disease transmission; and

WHEREAS, the southern house mosquito was introduced to Hawai'i in 1826, became the vector for avian malaria that was introduced with non-native songbirds, and is not an integral part of any Hawaiian ecosystem; and

WHEREAS, as the climate in Hawai'i continues to warm, this mosquito is expanding its range and encroaching on habitats where the last remaining populations of native forest birds persist; and

WHEREAS, additional extinctions of these irreplaceable forest bird species will occur if nothing is done; and

WHEREAS, Birds, Not Mosquitoes was founded as a multi-agency partnership working to save the native honeycreepers of Hawai'i from extinction by using a common, naturally-occurring bacteria as a "mosquito birth control" to suppress mosquito populations in Hawai'i; and

WHEREAS, *Wolbachia* is a naturally-occurring bacteria which is present in over half of all insect species worldwide, in many insects in Hawai'i, and including some mosquito species; and

WHEREAS, scientists have found that *Wolbachia* plays an important role in insect reproduction, because it can function like birth control, as male mosquitoes with one strain of *Wolbachia* can only successfully reproduce with females with the same strain of *Wolbachia*; and

WHEREAS, in a laboratory researchers can transfer an incompatible strain of *Wolbachia* into mosquitoes, rear large numbers of them, and then separate them by sex, so only male mosquitoes are released into the wild; and

WHEREAS, because male mosquitoes do not bite birds or people when released into the wild; and

WHEREAS, when the *Wolbachia* males mate with wild female mosquitoes the eggs laid do not hatch, thereby drastically reducing mosquitoes in our forests and potentially save our birds from extinction; and

WHEREAS, if this technique were expanded over time, it could bring some of our native honeycreepers not only back from extinction, but towards abundance; and

WHEREAS, Birds, Not Mosquitoes and their partners are seeking to secure the technology, deployment methods, funding, governmental approvals, and community support to successfully use this technique in Hawai'i.

NOW, THEREFORE, BE IT RESOLVED, by the Board of Directors of the Association of Hawaiian Civic Clubs at its Special meeting, in the malama of Kaaona and the rising of Kāne, this 25th day of June 2022, urging Federal, State, and Local elected officials to support the funding and implementation of the use of mosquito birth control to bring our native forest birds back from extinction and towards abundance; and

BE IT FURTHER RESOLVED, that a certified copy of this resolution be transmitted to U.S. Senator Brian E. Schatz, U.S. Senator Mazie Hirono, U.S. Representative Ed Case, U.S. Representative Kailani Kaiha, U.S. Secretary of the Interior Deb Haaland, the Governor of the State of Hawai'i, the President of the State Senate, the Speaker of the State House of Representatives, the Chair of the State Senate and House subject matter committees on Hawaiian Affairs, Water, and Land, the Chair of the Board of Trustees of the Office of Hawaiian Affairs, and all County Councilmembers.

The undersigned hereby certifies that the foregoing Resolution was duly adopted in the malama of Kaaona and the rising of Kāne, on the 25th day of June 2022, at a special meeting of the Board of Directors of the Association of Hawaiian Civic Clubs.

Hailama V.K.K. Farden, President

**Nakamura, Gayle M**

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**From:** Alicia <aameden@hawaii.rr.com>  
**Sent:** Saturday, June 25, 2022 11:28 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Please do not

Release mosquitoes on Hawaii! Who thinks up these totally insane ideas? Is it really worth that much money to some psychopaths?

Sent from my iPhone

**Nakamura, Gayle M**

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**From:** Guy265 <guy265@gmail.com>  
**Sent:** Saturday, June 25, 2022 10:52 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] To Release Mosquito Injected Wolbachia Bacterium

Guyven Reyes

I reject the act of releasing these modified mosquitoes, Stop playing god.  
The true GOD designed our body with all we need to overcome illness.

**Nakamura, Gayle M**

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**From:** Tanya Faumuina <tanyafaumuina@gmail.com>  
**Sent:** Friday, June 24, 2022 3:39 PM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] STOP RELEASE OF GMO MOSQUITOS!!!

Stop the release of gmo mosquitos this could destroy our entire food chain supply!!! Causing more food shortages etc like its all set & planned on WEF/Elites evil agendas!

**Nakamura, Gayle M**

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**From:** Stevie Hecmanczuk <shecmanczuk@outlook.com>  
**Sent:** Saturday, June 25, 2022 6:32 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Do NOT Allow The Male Mosquitos

Hello,

We do not want you to allow these Bill Gates Mosquitos to be released! These male mosquitos were released in other countries and just bred more mosquitos! It did not kill off the mosquito population and just made it worse. We do not consent to this experiment!

Thank you,

Stephanie Hecmanczuk

Sent from my iPhone

**Nakamura, Gayle M**

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**From:** Anthony Ching <acsolar808@gmail.com>  
**Sent:** Saturday, June 25, 2022 12:02 AM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Genetic modified Mosquitos

I Anthony Ching, I am against this. There have been no long-term studies on this and the safety for other animals and humans alike. We don't know what would happen to people that are bitten by these mosquitoes or the birds that you were trying to save, down to every creature that isn't extinct yet. You don't have the right to play God!

And I'm also against planned wild boar contraceptives. My family depends on wild boar that we hunt for food.

This genetic modification and sterilization on insects, animals and humans, needs to stop!!!

**Nakamura, Gayle M**

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**From:** Melodie <kona3gurl@yahoo.com>  
**Sent:** Friday, June 24, 2022 8:56 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] The release of injected mosquitoes

**Aloha, we need a FULL scope Environmental Impact Study before the release an invasive species!**

Mahalo, Melodie  
Sent from my iPhone

**Nakamura, Gayle M**

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**From:** Deborah Stryker <deborahstryker@gmail.com>  
**Sent:** Friday, June 24, 2022 8:45 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Do not release Make mosquitos!🚫

This is immoral and ridiculous.

Please DO NOT DO THIS!

So much has been proven that what this state has approved is NOT PROVEN and causes severe damage to all populations.

What Company is driving this decision?

Sincerely,  
Deborah Stryker  
Kealakekua, Hawaii

--

Deborah

**Nakamura, Gayle M**

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**From:** karifairy <karifairy@protonmail.com>  
**Sent:** Friday, June 24, 2022 7:54 PM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] No GMO'd mosquitos

Please do NOT approve the release of GMO'd mosquitos in Hawaii. It is not part of the natural environment.

There has not been enough research to know how this will effect everything else here. If they are released, there will be no going backwards.

Please don't approve it.

Mahalo,  
Kari

**Nakamura, Gayle M**

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**From:** Cassandra Galbier <cgalbier@gmail.com>  
**Sent:** Friday, June 24, 2022 6:49 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] GMO mosquitoes

To whom this may concern,

I ask you to please NOT allow the release of genetically modified mosquitoes and demand a full study and release of information on what happens if a human is bit, how they impact Hawaii flora and fauna, and what damages it can do to the Keiki when bit. Do not let our state become another experiment.

Mahalo for your time.

Cassandra Galbier

Maui resident

--

Cassandra Galbier

## Nakamura, Gayle M

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**From:** Kyoko Johnson <kyoko@conservationdogshawaii.org>  
**Sent:** Friday, June 24, 2022 5:52 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Testimony - Hawai'i Board of Agriculture Action on Proposal to Add Three Mosquito Species to List of Restricted Animals

Aloha Chairperson Shimabukuro-Geiser and fellow members of the committee,

I am writing to express **STRONG SUPPORT** for three of the recommended actions put forward by the Advisory Committee on Plants and Animals:

Review the southern house mosquitoes for future placement on the List of Restricted Animals (Part A), that will allow import by permit; and

- 
- 
- If placement on the list is approved, allow:
  - 
  - 
  - 
  - Importation of male
  - *Wolbachia*-incompatible
  - mosquitoes for release to suppress wild populations of southern house mosquitoes; and
  - 
  - 
  - 
  - Establish permit conditions for importation and release for field trials.
  -

These actions are extremely important for halting the decline and extinction of our native birds, and will allow for the protection of our local families from countless mosquito borne diseases. These techniques have been available since the 1960s and have been used around the world to great effect, saving thousands of lives without the cost of non-target impacts such as pesticide based abatement.

Hawai'i had no mosquitoes until 1826, and by using technologies like these not only can we save our native birds from imminent extinction but we can also restore the quality of life of local families.

Mahalo,

Kyoko N. Johnson  
Conservation Dogs of Hawaii  
(808) 728-8415  
[www.conservationdogshawaii.org](http://www.conservationdogshawaii.org)  
IG and FB: @conservationdogshawaii

Sent from my iPhone

**Nakamura, Gayle M**

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**From:** Kaleo Nakoa <nakoaforcouncil@gmail.com>  
**Sent:** Friday, June 24, 2022 5:43 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] Mosquito Experiment

Good Afternoon,

My name is Kaleo Nakoa and I was born and raised on Maui. I am a retired military veteran and recently moved back to Hawaii.

But, I am hear to submit testimony about the release of these experimental mosquitoes that you are planning. Hawaii and the sugar company did the same experiments with the mongoose and there are still hundreds of rats in Hawaii. So, what is my point? My point is you need to let Mother Nature do what Mother Nature wants to do. The mongoose that were released to help eradicate the rats only hurt native species. The same will go for these experimental mosquitoes. There is no benefit to release more chemicals into Hawaii. Please reconsider and disengage in such an awful experiment as Hawaii has no connection to dengue fever, but exposure to dengue fever has been from outside of the state of Hawaii. Thank you for your time.

Kaleo Nakoa

## **Nakamura, Gayle M**

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**From:** Juhl Rayne <juhlkrayne@gmail.com>  
**Sent:** Friday, June 24, 2022 4:37 PM  
**To:** HDOA.BOARD.TESTIMONY  
**Subject:** [EXTERNAL] NO bringing in mosquitos please!!!

aloha,  
this is an insane idea.  
please don't,  
Juhl Rayne

**Nakamura, Gayle M**

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**From:** giarose.strada@gmail.com  
**Sent:** Friday, June 24, 2022 4:43 PM  
**To:** HDOA.BOARD.TESTIMONY; HDOA.PQ.TESTIMONY  
**Subject:** [EXTERNAL] Mosquito Injected Wolbachia Bacterium that Sterilizes Eggs

To whom it may concern:

We need a FULL scope Environmental Impact Study before releasing an invasive species!

Please do not proceed!

Mahalo,  
Gia-rose Strada

## Nakamura, Gayle M

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**From:** kanaloaleohano <kanaloaleohano@protonmail.com>  
**Sent:** Friday, June 24, 2022 4:33 PM  
**To:** HDOA.BOARD.TESTIMONY; Ho, Jonathan K  
**Subject:** [EXTERNAL] Proposal to introduce alien insects

I am astonished and disgusted that this proposal has continued to go forward in spite of more opposition than support from people not employed by government or companies that stand to sell supplies for this proposed torture of our environment.

It is even more astonishing that no ENVIRONMENTAL IMPACT STUDY has been done, at least not a comprehensive, full-scope one.

Such ENVIRONMENTAL IMPACT STUDY must be done!

Needless to say -- but I will say it anyway -- all involved with such study must be prohibited from receiving any gain or benefit from ANY entity who stands to gain from Wolbachia, Aedes aegypti, or any infrastructure needed for this proposed project.

It has already been shown that horizontal gene transfer (HGT) can transfer genes between Wolbachia and its host in Aedes aegypti [12] and several other mosquito species [13]. Therefore, Wolbachia can genetically transform its host with functional genes with currently unknown consequences. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4013104/>

[https://downloads.regulations.gov/EPA-HQ-OPP-2015-0374-0018/attachment\\_1.pdf](https://downloads.regulations.gov/EPA-HQ-OPP-2015-0374-0018/attachment_1.pdf)

Horizontal transmission between unrelated host species is a proven phenomenon in Wolbachia. Studies have demonstrated that genetic sequences, ranging in size from single genes to entire bacterial genomes, have been transferred from Wolbachia to many of their insect hosts, and its effect on disease transmission is variable and potentially dangerous. <https://www.pnas.org/doi/10.1073/pnas.222228199>

Also of concern is this observation of Wolbachia-induced enhancement of a human pathogen in mosquitoes, suggesting that caution should be applied before releasing Wolbachia-infected insects as part of a vector-borne disease control program. <https://journals.plos.org/plosntds/article?id=10.1371/journal.pntd.0002965>