



Hawai‘i Unites is a 501(c)(3) nonprofit organization dedicated to the conservation and protection of our environment and natural resources. We are opposed to action plans and funding allocations through the [Hawai‘i State Wildlife Action Plan \(SWAP\)](#) for lab-altered mosquito releases in Hawai‘i. We oppose all actions plans and funding allocations for *Wolbachia*-bacteria-infected mosquito release experiments, Incompatible Insect Technique (IIT) mosquito releases, Incompatible Insect Technology (IIT) mosquito releases, genetic manipulation of mosquitoes, genetically modified mosquitoes, mosquito gene drives, CRISPR gene-edited precision-guided Sterile Insect Technique (pgSIT) mosquitoes, and mosquito synthetic biology control tools.

The [2025 SWAP draft documents](#)<sup>1</sup> include the document, “21. CHAPTER 7.02 FOREST BIRDS RED-LINE DRAFT.docx.” This document states that research priorities for most Hawaiian forest birds include “developing methods to control mosquito populations.” The document states that:

- Conservation actions specific to the ‘akeke‘e, ‘akikiki, ‘anianiau, Kaua‘i ‘amakihi, Kaua‘i ‘elepaio, and puaiohi may include suppressing mosquito populations “through releases of incompatible or sterile mosquitoes” and investigating “options to eradicate mosquitoes, including use of genetic manipulations.”
- Research priorities specific to the ‘akeke‘e, ‘akikiki, and Kaua‘i ‘amakihi include determining sources of mosquitoes and investigating “methods of mosquito control.”
- Conservation actions specific to the ‘ākohekohe and kiwikiu may include developing and deploying “mosquito control techniques as soon as possible to reduce the mosquito vector of avian disease.”
- Conservation actions specific to the ‘apapane, Hawai‘i ‘amakihi, and ‘i‘iwi may include controlling mosquitoes “across native forest habitat.”
- Conservation actions specific to the ‘i‘iwi and Kaua‘i ‘elepaio may include investigating “options to eradicate mosquitoes, including use of genetic manipulation.”
- Conservation actions specific to the Maui ‘alauahio include “mosquito control implementation.”
- Research priorities specific to the Maui ‘alauahio include “developing methods to control mosquitoes.”
- Conservation actions specific to the po‘ouli may include implementing “mosquito control techniques to reduce non-native disease in forest bird populations.”



Current “methods to control mosquito populations” in use by the DLNR and their *Birds, Not Mosquitoes* (BNM) agency partners include the release of millions of *Wolbachia*-bacteria-infected mosquitoes on our fragile ecosystems on Maui and Kaua‘i. No studies have been done on the potential significant impacts of these projects or on the serious risks to the health of our islands’ people, wildlife, and ‘āina. No environmental impact statement (EIS) has been completed for any island. Hawai‘i Unites’ active [court case](#)<sup>2</sup> to stop the mosquito releases on Maui and require an EIS brings forth several significant concerns, including:

- Accidental release of female mosquitoes that bite, breed, and spread disease ([EPA guidelines](#)<sup>3</sup> allow for the release of one female for every 250,000 males; just one female released can produce 160,000 more females through breeding of the generations in her lifespan; 3,103 females are allowed to be released weekly on [Maui](#)<sup>4</sup> – up to 6,000 mosquitoes released twice weekly per acre in the 64,666-acre project area:  $6,000 \times 2 \times 64,666 = 775,992,000$  mosquitoes divided by 250,000 equals 3,103 females weekly)
- Peer-reviewed studies showing *Wolbachia* bacteria can cause [increased pathogen infection](#)<sup>5</sup> and [disease-spreading capability](#)<sup>5,6</sup> in mosquitoes
- [Horizontal transmission](#)<sup>7</sup> of *Wolbachia* bacteria to wild mosquitoes and other insect vectors of disease
- Population replacement of wild mosquitoes with lab-altered mosquitoes (as few as [three females released](#)<sup>8</sup> can cause population replacement)
- Wind drift of released mosquitoes to unintended areas
- Lack of documented biosecurity protocols and pathogen screenings for the imported mosquitoes
- Risks to the health of people and animals, and the potential for the plan to cause the extinction of the native birds it is meant to protect

Tropical disease and vector expert Dr. Lorrin Pang has [testified](#)<sup>9</sup> as an expert witness in our [case](#)<sup>10</sup> and has affirmed that this mosquito experiment has not been studied enough for the State of Hawai‘i and its agency partners to move forward. Dr. Pang has decades of experience as a leader in mitigating mosquito-borne diseases. He has authored over 75 publications in peer-reviewed medical journals, over 40 of which are focused specifically on mosquito-borne illnesses.

The mosquitoes currently being released in the millions on Maui and Kaua‘i are experimental. Southern house mosquitoes lab-infected with *Wolbachia* bacteria have never been documented as used for stand-alone field release anywhere in the world. The 64,666-acre East Maui project area is the largest *Wolbachia* mosquito release of any kind globally to date, and Kaua‘i’s 59,204-acre project area is the second largest.

The agencies releasing these lab-altered mosquitoes have [admitted](#)<sup>11</sup> that the plan does not include monitoring the effects of the experimental mosquitoes on forest birds.



Mass release of these mosquitoes began on Maui in November 2023. The DLNR and their partnering agencies have produced no data on the results of these mosquito releases. There has been no indication that the plan is even working for its intended purpose. Deviations from the approved plan have also been occurring for over a year. Mosquitoes are being released solely by helicopter rather than by drone, exacerbating concerns about noise disturbances, disruptions to wildlife habitat, and the potential for collisions, accidents, and wildland fires. The helicopter longline release system described in the environmental assessment is not the system being used, and helicopters appear to be flying closer to the tree canopy than the approved distance, increasing the potential for adverse impacts.

As of February 2025, mosquitoes are now also being mass released on Kauaʻi. Additionally, aerial spraying of Bti larvicide on Maui and Kauaʻi in combination with the aerial release of bacteria-infected mosquitoes is now occurring. This combination of products is not part of the approved plans, and no studies have been done on the impacts of these activities to our environment. The agencies involved have not addressed concerns about potential data falsification due to the use of two different mosquito suppression products within each project area.

*Birds, Not Mosquitoes* agency partners are also currently researching and developing<sup>12</sup> more novel “tools” for deployment, including CRISPR gene-edited precision-guided Sterile Insect Technique (pgSIT) mosquitoes and gene drives. The Akbari Laboratory at the University of California San Diego is being funded to explore the development of next generation precision-guided Sterile Insect Technique mosquito control tools. This pgSIT technology is currently being developed<sup>13</sup> in southern house mosquitoes, and the plan is to mass-produce them in Hawaiʻi’s Department of Land and Natural Resources lab insectary for release on the islands. There are serious risks associated with CRISPR, including the potential for unintended off-target genome editing effects and mutations. Gene drives, another genetic manipulation mosquito control strategy planned for use by BNM agency partners, are described in a 2023 [Scientific American](#)<sup>14</sup> article as a new technology that “could wipe out whole species.” The article questions whether gene drives are “a magic bullet or a genetic atom bomb.”

Hawaiʻi Unites asks that the Hawaiʻi State Wildlife Action Plan (SWAP) document “21. CHAPTER 7.02 FOREST BIRDS RED-LINE DRAFT.docx” be amended to remove all action plans and funding allocations, including conservation actions and research priorities, for suppressing mosquito populations through releases of incompatible or sterile mosquitoes. We further ask that the document be amended to remove all action plans and funding allocations for investigating options to eradicate mosquitoes that include the use of genetic manipulations.

Please protect Hawaiʻi’s endangered and threatened native birds and all native species in the forest birds’ natural habitats. Stop funding the release of experimental bacteria-infected mosquitoes on Maui and Kauaʻi, and stop funding conservation actions and research priorities that include plans to release dangerous mosquito gene drives and CRISPR gene-edited precision-guided Sterile Insect Technique (pgSIT) mosquitoes on sacred lands in Hawaiʻi. Conservation



efforts and funding must focus on more environmentally sound approaches like habitat and stream flow restoration, which would honor the ‘āina, the culture, and the ancestral connections of the native birds rather than putting Hawai‘i’s native species at further risk of extinction.

Mahalo,  
Tina Lia  
Founder  
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### References

1. Hawai‘i State Wildlife Action Plan (SWAP) 2025 SWAP draft documents  
[https://hawaiioint-my.sharepoint.com/personal/maya\\_goodoni\\_researcher\\_hawaii\\_gov/\\_layouts/15/onedrive.aspx?id=%2Fpersonal%2Fmaya%5Fgoodoni%5Fresearcher%5Fhawaii%5Fgov%2FDocuments%2FPublic%20SWAP&ga=1&startedResponseCatch=true](https://hawaiioint-my.sharepoint.com/personal/maya_goodoni_researcher_hawaii_gov/_layouts/15/onedrive.aspx?id=%2Fpersonal%2Fmaya%5Fgoodoni%5Fresearcher%5Fhawaii%5Fgov%2FDocuments%2FPublic%20SWAP&ga=1&startedResponseCatch=true)
2. Hawaii Unites and Tina Lia v. Board of Land and Natural Resources, State of Hawai‘i, and Department of Land and Natural Resources, State of Hawai‘i (5/8/23)  
[https://hawaiiunites.org/wp-content/uploads/2023/05/2023\\_0508\\_Hawaii\\_Unites\\_and\\_Lia\\_v\\_BLNR\\_and\\_DLNR.pdf](https://hawaiiunites.org/wp-content/uploads/2023/05/2023_0508_Hawaii_Unites_and_Lia_v_BLNR_and_DLNR.pdf)
3. EPA Emerging Mosquito Control Technologies  
<https://www.epa.gov/regulation-biotechnology-under-tsca-and-fifra/emerging-mosquito-control-technologies>  
DLNR HDOA Request to Import Southern House Mosquitoes for Immediate Field Release (6/9/22)  
<https://hdoa.hawaii.gov/wp-content/uploads/2018/05/DLNR-Culex-quinquefasciatus-PA-All-Docs.pdf>  
“There is an EPA reviewed value of 1 female release per 250,000 males with the MosquitoMate product. A similar value is likely to be estimated for Culex quinquefasciatus given that similar automation, engineering and machine learning technology is being applied to sex sorting.”
4. Final Environmental Assessment: Suppression of Invasive Mosquito Populations to Reduce Transmission of Avian Malaria to Threatened and Endangered Forest Birds on East Maui EA-FONSI (4/8/23)  
[https://files.hawaii.gov/dbedt/erp/Doc\\_Library/2023-04-08-MA-FEA-Suppression-of-Mosquitoes-on-East-Maui.pdf](https://files.hawaii.gov/dbedt/erp/Doc_Library/2023-04-08-MA-FEA-Suppression-of-Mosquitoes-on-East-Maui.pdf)  
“The project area includes approximately 64,666 acres...”  
“Based on current estimates, we expect to release between 50 and 6,000 incompatible mosquitoes per acre per treatment (which would occur up to twice per week) depending



on elevation and local temperature and capture data gathered during monitoring.”

5. “*Wolbachia* Can Enhance *Plasmodium* Infection in Mosquitoes: Implications for Malaria Control?” – Grant L. Hughes, Ana Rivero, Jason L. Rasgon (PLOS Pathogens, 9/4/14)  
<https://pmc.ncbi.nlm.nih.gov/articles/PMC4154766/>
6. “*Wolbachia* Enhances West Nile Virus (WNV) Infection in the Mosquito *Culex tarsalis*” – Brittany L. Dodson, Grant L. Hughes, Oluwatobi Paul, Amy C. Matarachiero, Laura D. Kramer, Jason L. Rasgon (PLOS Neglected Tropical Diseases, 7/10/14)  
<https://journals.plos.org/plosntds/article?id=10.1371/journal.pntd.0002965>
7. “*Wolbachia* infection in wild mosquitoes (Diptera: Culicidae): implications for transmission modes and host-endosymbiont associations in Singapore” – Huicong Ding, Huiqing Yeo, Nalini Puniamoorthy (BMC, 12/9/20)  
<https://parasitesandvectors.biomedcentral.com/articles/10.1186/s13071-020-04466-8>  
“*Wolbachia* Horizontal Transmission Events in Ants: What Do We Know and What Can We Learn?” – Sarah J. A. Tolley, Peter Nonacs, Panagiotis Sapountzis (Frontiers in Microbiology, 03/06/19)  
<https://www.frontiersin.org/journals/microbiology/articles/10.3389/fmicb.2019.00296/full>  
“The Intracellular Bacterium *Wolbachia* Uses Parasitoid Wasps as Phoretic Vectors for Efficient Horizontal Transmission” – Muhammad Z. Ahmed, Shao-Jian Li, Xia Xue, Xiang-Jie Yin, Shun-Xiang Ren, Francis M. Jiggins, Jaco M. Greeff, Bao-Li Qiu (National Center for Biotechnology Information, National Library of Medicine, 02/12/15)  
<https://pmc.ncbi.nlm.nih.gov/articles/PMC4347858/>
8. “*Wolbachia*-mediated sterility suppresses *Aedes aegypti* populations in the urban tropics” – The Project Wolbachia – Singapore Consortium, Ng Lee Ching (medRxiv, 6/17/21)  
<https://www.medrxiv.org/content/10.1101/2021.06.16.21257922v1.full>
9. Transcript of Hearing 7/21/23: Plaintiffs’ Motion for Temporary Restraining Order and Preliminary Injunction  
<https://hawaiiunites.org/wp-content/uploads/2024/01/HIUnitesvBLNR072123Audio.pdf>
10. Plaintiffs’ Motion for Temporary Restraining Order and Preliminary Injunction (6/20/23)  
[https://hawaiiunites.org/wp-content/uploads/2023/06/2023\\_0620\\_Hawaii\\_Unites\\_and\\_Lia\\_v\\_BLNR\\_and\\_DLNR\\_Plaintiffs\\_Motion\\_for\\_TRO\\_Preliminary\\_Injunction\\_Filed\\_All\\_Documents.pdf](https://hawaiiunites.org/wp-content/uploads/2023/06/2023_0620_Hawaii_Unites_and_Lia_v_BLNR_and_DLNR_Plaintiffs_Motion_for_TRO_Preliminary_Injunction_Filed_All_Documents.pdf)
11. Final Environmental Assessment for Use of *Wolbachia*-based Incompatible Insect Technique for the Suppression of Non-native Southern House Mosquito Populations on Kaua’i EA-FONSI (10/13/23)  
[https://files.hawaii.gov/dbedt/erp/Doc\\_Library/2023-10-23-KA-FEA-Wolbachia-based-](https://files.hawaii.gov/dbedt/erp/Doc_Library/2023-10-23-KA-FEA-Wolbachia-based-)



[Suppression-of-Mosquitoes-on-Kauai.pdf](#)

“Monitoring of birds is beyond the scope of this EA.”

12. U.S. Department of the Interior Strategy for Preventing the Extinction of Hawaiian Forest Birds (12/15/22)  
<https://www.fws.gov/sites/default/files/documents/DOI%20Strategy%20for%20Preventing%20the%20Extinction%20of%20Hawaiian%20Forest%20Birds%20%28508%29.pdf>
13. “Hawaiian Forest Bird Conservation Strategies for Minimizing the Risk of Extinction: Biological and Biocultural Considerations” – Eben H. Paxton, Megan Laut, Stanton Enomoto, Michelle Bogardus (USGS, UH Hilo, April 2022)  
<https://dspace.lib.hawaii.edu/server/api/core/bitstreams/8b60e14e-0935-4b61-8339-4107fce3ce91/content>  
(Technical Report HCSU-103: Appendix VI. Wolbachia IIT Implementation Outline, pages 80-85)
14. “Gene Drives Could Fight Malaria and Other Global Killers but Might Have Unintended Consequences” – Matthew Cobb (Scientific American, 1/13/23)  
<https://www.scientificamerican.com/article/gene-drives-could-fight-malaria-and-other-global-killers-but-might-have-unintended-consequences/>