



**National Park Service  
US Department of the Interior**

**Haleakalā National Park  
Maui, Hawai'i**

**COMMENT ANALYSIS REPORT  
Haleakalā National Park**

**Suppression of Invasive Mosquito Populations to  
Reduce Transmission of Avian Malaria to Threatened  
and Endangered Forest Birds on East Maui  
Environmental Assessment**

## INTRODUCTION

In compliance with the National Environmental Policy Act (NEPA), the National Park Service (NPS) and State of Hawai‘i Department of Land and Natural Resources (DLNR) prepared an Environmental Assessment (EA) to examine alternative actions and environmental impacts associated with suppressing invasive mosquito populations to reduce transmission of avian malaria to threatened and endangered forest birds on East Maui. The purpose of the project is to substantially suppress or eliminate invasive southern house mosquitoes (*Culex quinquefasciatus*) and, thus, avian malaria, in threatened and endangered forest bird populations on East Maui, thereby reducing extinction risks and contributing to the recovery of these species. To prevent the extinction of threatened and endangered forest birds on East Maui, timely management action needs to be taken to control avian malaria.

This comment analysis report provides a summary of the public comments received during the public review period of the EA. Although the analysis process attempts to capture the full range of public concerns, this report should be used with caution. Comments from individuals who chose to respond do not necessarily represent the sentiments of the entire public, and may not accurately reflect existing conditions, directions, or situations. Furthermore, this was not a vote-counting process, and as explained in the “Public Comment Process Summary” section below, the emphasis was on content of a comment rather than the number of times a comment was received. Many form letter comments with nearly identical content were received from numerous different individuals.

## PUBLIC COMMENT PROCESS SUMMARY

The public was provided two opportunities to comment on the planning process. The NPS and DLNR held a 45-day public scoping period from December 6, 2021, to January 20, 2022, which initiated the joint NEPA and Hawai‘i Environmental Policy Act (HEPA) planning process.

Virtual public scoping meetings were held on December 14, 2021, and January 6, 2022. In total, 51 people attended the virtual public scoping meetings, including 34 on December 14, 2021, and 17 on January 6, 2022. The project team received 72 correspondences during the 45-day scoping period. The comments received were reviewed by the NPS and DLNR and considered in developing the EA. A public scoping report documenting the process is available on the NPS Planning, Environment & Public Comment (PEPC) project site at <https://parkplanning.nps.gov/HALE-mosquito>.

The NPS and DLNR also requested public input on the draft EA during a more than 45-day EA public review period from December 6, 2022 to January 23, 2023. Two virtual public meetings were held on January 3 and January 5, 2023. In total, 82 people attended the virtual public scoping meetings, including 44 on January 3, 2023 and 38 on January 5, 2023. In total, the NPS and DLNR received 853 independent pieces of correspondence (see “Definition of Terms” below), some with substantive comments (see “Definition of Terms” below). Of the 853 correspondences, nearly all (852 correspondences) were submitted directly through the PEPC system. One letter was delivered by mail or by hand directly to the NPS.

Of the correspondences submitted, 733 (approximately 86 percent) were from individuals reportedly living in Hawai‘i (see **Table 1**). After Hawai‘i, California was the state with the next highest number of submittals (39 or approximately 5 percent). Other states or countries represented 1 percent or less (each) of the remaining submittals.

**TABLE 1. GEOGRAPHIC DISTRIBUTION OF PUBLIC CORRESPONDENCE SUBMITTED BY STATE**

State	Number of Correspondences	Percentage of Correspondences
Hawai‘i	733	86%
California	39	5%
Texas	8	1%
New York	7	1%
Ohio	6	1%
Montana	5	1%
Oregon	5	1%
United Kingdom	5	1%
Washington	5	1%
Maine	4	< 1%
New Jersey	4	< 1%
Colorado	3	< 0.5%
Illinois	3	< 0.5%
Virginia	3	< 0.5%
Arizona	2	< 0.5%
Louisiana	2	< 0.5%
Michigan	2	< 0.5%
North Carolina	2	< 0.5%
New Mexico	2	< 0.5%
Alaska	1	~ 0.1%
Arkansas	1	~ 0.1%
Georgia	1	~ 0.1%
Idaho	1	~ 0.1%
Indiana	1	~ 0.1%
Massachusetts	1	~ 0.1%
Maryland	1	~ 0.1%
Mariana Islands	1	~ 0.1%
New Hampshire	1	~ 0.1%
Pennsylvania	1	~ 0.1%
South Carolina	1	~ 0.1%
Utah	1	~ 0.1%
Wisconsin	1	~ 0.1%
<b>TOTAL</b>	<b>853</b>	<b>100%</b>

In addition to the general public, members of the following agencies and organizations submitted comments on the EA:

- Ahahui Malama I Ka Lokahi / Hawaiians for the Conservation of Native Ecosystems
- American Bird Conservancy (ABC)
- Birds Hawai‘i Past Present, LLC
- East Maui Watershed Partnership
- Friends of Hakalau Forest NWR
- Friends of Hawaiian Islands NWR
- Haleakalā Conservancy
- Hawai‘i Audubon Society
- Hawai‘i County State Jural Assembly
- Hawai‘i Department of Education
- Hawai‘i Farmers Union United
- Hawai‘i Pacific Health
- Hawai‘i Unites
- Honolua Bay Conservancy
- Jackson Hole Wildlife Foundation
- Keaukaha Community Association – Sierra Club
- Kipahulu Ohana, Inc.
- Ka ‘Ike Mau Loa O Ke Kai Hohonu
- Maui Bird Conservation Center
- Maui Forest Bird Recovery Project
- Maui Ocean Academy
- Mauna Kahalawai Watershed Partnership
- National Parks Conservation Association
- Pele Lani Farm, LLC
- Soleil Management Hawai‘i, LLC
- The Nature Conservancy (TNC), Hawai‘i and Palmyra
- The Wildlife Society – Hawai‘i Chapter
- We Are One, Inc.

Among the substantive comments received, the majority discussed elements of the alternatives presented in the EA, expressed skepticism that the NEPA level of analysis presented in the EA was insufficient, expressed concerns about potential unknown impacts of the proposed action, expressed concerns that the proposed action involves release of an invasive or genetically modified organism, expressed concerns about public health and horizontal transmission (evolutionary or population changes), and expressed concerns that other possible alternatives were not adequately considered.

Commenters will continue to be notified of the project's progress and are encouraged to visit the NPS PEPC website at <https://parkplanning.nps.gov/HALE-mosquito> to view information about this project.

## DEFINITION OF TERMS

Primary terms used in this document are defined below:

***Correspondence:*** A correspondence is the entire document received from an individual commenter. It can be in the form of a letter, written comment form, note card, or petition. Each piece of correspondence is assigned a unique identification number in the NPS PEPC system.

***Comment:*** A comment is a portion of the text within a correspondence that addresses a single subject. It should include information such as an expression of support or opposition to the use of an alternative, additional data regarding an existing condition, or an opinion debating the adequacy of the analysis.

***Concern Statement:*** A concern statement is a written summary that captures the concern or topic of a group of similar comments. Some groups of comments may be further separated into several concern statements to provide a better focus on the content of the comments.

***Representative Quote:*** A representative quote is direct text from a piece of correspondence from the public that supports the concern statement. Representative quotes are examples that best state the premise of the group of comments categorized under a concern statement. Representative quotes are taken verbatim from their associated correspondence and are not edited for spelling or grammar.

## COMMENT ANALYSIS

Comment analysis is a process used to compile and combine similar public comments into a format that can be used by decision makers and the project team. Comment analysis helps the project team in organizing, clarifying, and addressing technical information pursuant to NEPA regulations. It also aids in identifying the topics and issues to be evaluated and considered throughout the planning process. A coding structure was developed to capture the content of all the comments received and to help sort comments into logical groups by topic and issue. The coding structure for this project was derived from an analysis of the range of topics from comments received from members of the public. Comments were coded into the following categories:

- Scope of the NEPA analysis
- Support and opposition for the proposed action
- Components of the proposed action
- New alternatives, alternative elements, or range of alternatives
- Perceived experimental nature of the proposed action

- Potential environmental consequences related to wildlife and habitat, introduced or invasive species, bioengineering, population changes and disease transmission, environmental justice and Native Hawaiian concerns, human health and safety, wilderness, and wildfire

During coding, comments were also classified as substantive or non-substantive. As explained in section 4.6 of the 2015 NPS NEPA Handbook, a substantive comment does one or more of the following:

- Question, with a reasonable basis, the accuracy of information presented in the EA;
- Question, with reasonable basis, the adequacy of the environmental analysis;
- Present reasonable alternatives other than those presented in the EA; and/or
- Cause changes or revisions in the proposal.

Substantive comments may raise, debate, or question a point of fact or policy. Comments in favor of or against the proposed action or alternatives, or comments that only agree or disagree with agency policy, are not considered substantive. Although all comments were read and will be considered in shaping the EA, only those determined to be substantive are explicitly addressed in this report.

## CONTENT ANALYSIS

The following tables are produced from PEPC and provide information on the numbers and types of comments received, organized by code. **Tables 2** and **3** provide general demographic information, including the types of correspondences received and the correspondences received from organization types, respectively. It should be noted that not all commentors identified an affiliated organization when they submitted their correspondences, so there could have been additional organization types not accounted for in **Table 3**.

**TABLE 2. CORRESPONDENCE COUNT BY CORRESPONDENCE TYPE**

State	Number of Correspondences	Percentage of Correspondences
Identical Form Letter	107	12.6%
Unique Web Correspondence	745	87.3%
Hard Copy Letter	1	0.1%
<b>TOTAL</b>	<b>853</b>	<b>100%</b>

**TABLE 3. CORRESPONDENCE COUNT BY ORGANIZATION TYPE**

Organization Type	Number of Correspondences	Percentage of Correspondences
Conservation/Preservation	19	2.2%
Other Organizations	10	1.2%
<b>Unaffiliated Individual</b>	<b>824</b>	<b>96.7%</b>
<b>Total</b>	<b>853</b>	<b>100%</b>

**Table 4** presents the coding structure used to analyze the correspondences and the distribution of substantive comments within that coding structure. While many of the 853 correspondences contained multiple substantive comments, some contained no substantive comments. Additionally, some comments may have been assigned multiple codes. Thus, the total number of comments shown in **Table 4** does not equal the number of correspondences submitted during the public comment period.

**TABLE 4. SUBSTANTIVE COMMENT DISTRIBUTION BY CODE**

Code	Code Description	Number of Comments	Percentage of Comments
<b>NP</b>	NEPA Level of Analysis	94	17.7%
<b>A1</b>	Alternatives - Proposed Action	37	7.0%
<b>A2</b>	Alternatives - Range of Alternatives	19	3.6%
<b>A3</b>	Alternatives - New Alternatives or Alternative Elements	7	1.3%
<b>A4</b>	Alternatives - Insufficient Study/Experimental	77	14.5%
<b>EC1</b>	Environmental Consequences - Wildlife and Habitat	49	9.2%
<b>EC2</b>	Environmental Consequences - Wilderness	5	0.9%
<b>EC3</b>	Environmental Consequences - Bioengineering / Genetic Modification	41	7.7%
<b>EC4</b>	Environmental Consequences - Introduced or Invasive Species	38	7.2%
<b>EC5</b>	Environmental Consequences - Wildfire	2	0.4%
<b>EC6</b>	Environmental Consequences - General Comments	45	8.5%
<b>EC7</b>	Environmental Consequences - Population Changes and Disease Transmission	56	10.5%
<b>EC8</b>	Environmental Consequences - Environmental Justice and Native Hawaiian Concerns	19	3.6%
<b>EC9</b>	Environmental Consequences - Human Health and Safety	42	7.9%
<b>TOTAL</b>		<b>531 *</b>	<b>100.0%</b>

*\* While many of the 853 correspondences contained multiple comments, some contained no substantive comments. Thus, the total number of comments shown in this table does not equal the number of correspondences submitted during the public comment period.*

## SUBSTANTIVE PUBLIC COMMENTS WITH REPRESENTATIVE QUOTES

This Comment Analysis Report is an analysis of the substantive comments received during the public comment period for the EA. As explained above, the analysis of substantive comments is organized by the codes presented in **Table 4** and then further organized into concern statements in the following sections of this report. Representative quotes under the concern statements are examples taken directly from the text of the public's correspondences and have not been edited; therefore, spelling and grammar errors have not been corrected. Agency responses to substantive public comments (concern statements) can be found in Attachment A of the Finding of No Significant Impact (FONSI), located at <https://parkplanning.nps.gov/HALE-mosquito>.

### NP (Substantive) - NEPA Level of Analysis

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***CONCERN STATEMENT:** Commentors were concerned that the level of analysis presented in the Environmental Assessment (EA) was insufficient, and that an Environmental Impact Statement (EIS) should be prepared.*

**Correspondence ID#:** 35      **Comment ID#:** 1152502

**Comment Text:** "WE need an Environmental Impact Statement before any decisions can be made about this."

**Correspondence ID#:** 62      **Comment ID#:** 1152895

**Comment Text:** "The scope, risks, and experimental nature of this project require a detailed, comprehensive Environmental Impact Statement"

**Correspondence ID#:** 105      **Comment ID#:** 1152548

**Comment Text:** "In accordance with the proviso in Chapter 343, matters of great significance, potential or verified, either way, MUST be addressed by an EIS (and not simply an EA)."

**Correspondence ID#:** 340      **Comment ID#:** 1152964

**Comment Text:** "A simple Environmental Assessment is not adequate and a thorough Environmental Impact Statement, which would include a detailed analysis of the risks associated with this plan is mandatory."

***CONCERN STATEMENT:** A commentor was concerned that insufficient time was provided to review the EA and respond.*

**Correspondence ID#:** 123      **Comment ID#:** 1152559

**Comment Text:** "Please do a full environmental impact assessment and statement that is broadly and clearly released to the public with sufficient time to respond."



## A1 (Substantive) - Alternatives - Proposed Action

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**CONCERN STATEMENT:** *Commentors were concerned that the proposed action is not a long-term solution.*

**Correspondence ID#:** 113      **Comment ID#:** 1153008

**Comment Text:** “In mathematics, a proof is designated as being necessary but not sufficient when it is a good idea but ultimately will not fit the need. I believe the Wolbachia technique for controlling Culex is the same - at this point in time it seems to be the only way we have to prevent extinction of some, or all, of Maui's honeycreepers, but I do not believe it to be a good long term solution.”

**Correspondence ID#:** 283      **Comment ID#:** 1153005

**Comment Text:** “As a decades old participant in dryland forest restoration, and therefore native bird habitat, I applaud the State DLNR for attempting to get the avian malaria issue under control. However, I also find the pertinent EA and the scope of possible solutions to be very short sighted.”

**Correspondence ID#:** 308      **Comment ID#:** 1153007

**Comment Text:** “These sorts of reckless actions ruin environments. It's in Hawai'i's best interest to ban and outlaw all of these sorts of short sighted knee jerk reactions to questionable and dangerous methods of genetic tampering.”

**CONCERN STATEMENT:** *Commentors were concerned that the proposed action may be inefficient, ineffective, and costly.*

**Correspondence ID#:** 113      **Comment ID#:** 1153015

**Comment Text:** “It will be costly and subject to budget cuts.”

**Correspondence ID#:** 156      **Comment ID#:** 1153013

**Comment Text:** “Better still would be to leap forward to gene drive mechanisms. That effort would be one and done and far more efficient, effective, have a lower cost and be sustainable.”

**Correspondence ID#:** 171      **Comment ID#:** 1153016

**Comment Text:** “It would be another problem to create, more wasted funding.”

**Correspondence ID#:** 173      **Comment ID#:** 1152018

**Comment Text:** “Per the U.S. Department of the Interior Strategy, “Wolbachia IIT is a novel tool for conservation purposes and its degree of efficacy in remote forest landscapes is unknown.”

**CONCERN STATEMENT:** *One commenter suggested that the EA acknowledge the concerns around unanticipated outcomes and that a monitoring and response plan will be implemented.*

**Correspondence ID#:** 819      **Comment ID#:** 1153068

**Comment Text:** “The monitoring plan described on page 13 contains limited information about what is being considered. The monitoring program and the ability to detect and respond to any issues that might

arise is essential to the success of this action. The partnership should be prepared for unanticipated outcomes by having a robust monitoring plan to detect issues that may arise and a plan for responding to such issues. The act of going through such a planning process would be good for the project overall and would calm many fears around this project. While the details of the monitoring and response plan are in development, it could be helpful to acknowledge the concerns around unanticipated outcomes and state in this document that a monitoring and response plan will be implemented.”

***CONCERN STATEMENT:** One commenter suggested that there was a discrepancy in the EA regarding the number of monitoring sites that would be used. More specifically, page 14 of the EA indicates that eight sites would be used where the table only lists five monitoring sites.*

**Correspondence ID#:** 819      **Comment ID#:** 1153069

**Comment Text:** “On page 14, there is a description of the number of monitoring sites that would be used. In the text, eight sites are described while in the table only five sites are shown. This discrepancy should be corrected or explained better if there is a difference between what is being represented here.”

***CONCERN STATEMENT:** One commenter noted that page 20 of the EA states that "personnel would not disturb, remove or trim woody plants greater than 15 feet tall during the bat birthing and pup rearing season of June 1 through September 15" and that the EA also states that any tree cover would not be removed during the forest bird breeding season of November 1 through June 30. This would mean there are only 6 weeks a year of allowable trail clearing time. If ground releases become necessary and it falls outside of that limited window, crews may not be able to access key areas.*

**Correspondence ID#:** 819      **Comment ID#:** 1152924

**Comment Text:** “In the same "Resource Mitigation Measures" section on page 20, it is stated that "personnel would not disturb, remove or trim woody plants greater than 15 feet tall during the bat birthing and pup rearing season of June 1 through September 15" and it also states that any tree cover would not be removed during the forest bird breeding season of November 1 through June 30. This would mean there are only 6 weeks a year of allowable trail clearing time. If ground releases become necessary and it falls outside of that limited window, crews may not be able to access key areas. Perhaps there is a geographical area where these limitations are more necessary? Or perhaps biological surveys could be done ahead of any clearing? A qualifier for clearing done in the interest of human safety should also be considered.”

***CONCERN STATEMENT:** One commenter was concerned about limiting mosquito releases to two months out of the year by helicopter could limit the effectiveness of the project. A commenter was also concerned with limiting drone releases to two times per week in the entire project area.*

**Correspondence ID#:** 819      **Comment ID#:** 1152922

**Comment Text:** “On page 12 in the "Helicopter Longline Release" section, there are similar logistical constraints expressed in the statement "the use of helicopters for releasing incompatible mosquitoes is proposed as a short-term (up to two months), temporary release method" and again on page 68 that is

limited even further to "two months per year" without explanation if this refers to a calendar year or any 12-month period. There continues to be research on the best way to get IIT mosquitoes out onto the landscape so all deployment options should be kept open. Drones, helicopters, and pedestrian/vehicle releases should all be equally considered, and limitations should not be placed on the use of one method over another. We are concerned that any unnecessary restrictions on dispersal techniques could be detrimental for the long-term success of this proposed action.”

**Correspondence ID#:** 821      **Comment ID#:** 1153072

**Comment Text:** “I realize that it is desirable to limit impacts by using drones instead of helicopters but I would not so firmly limit helicopter use to only two months at this point in time (pgs 5, 8, 12, 37 and others). I would use language to suggest that it is desirable to limit is to as short a duration as possible while still achieving success with this project.”

**Correspondence ID#:** 821      **Comment ID#:** 1153073

**Comment Text:** “Second, in a similar vein, on p6, it states that releases will be limited to two times per week, which suggests that releases will only occur ANYWHERE in the project area twice a a week and again seems premature given what we know about availability of mosquitoes, availability of drones, weather etc. If a limit is needed, I prefer the language on p8, which states “two releases per week per location”; the addition of per location is more representative of what is likely to occur and allows more latitude.”

***CONCERN STATEMENT:** One commenter was concerned about limiting drone launch sites to “front country” areas only.*

**Correspondence ID#:** 819      **Comment ID#:** 1152921

**Comment Text:** “On page 8 in the "Drone Release" section, there is a statement that it is "assumed that drones would be flown from "front country" locations... no helicopter use would be required to transport drone operators to “backcountry areas.” This appears to put an unnecessary limitation on the project operations if backcountry drone operations become necessary. We suggest removing this statement.”

## **A2 (Substantive) - Alternatives - Range of Alternatives**

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***CONCERN STATEMENT:** Commentors were concerned that the entire range of alternatives was not fully assessed, including alternatives such as reforestation, gene drive in mosquitoes, radiation to sterilize the mosquitoes, or the use of a Cordyceps fungus.*

**Correspondence ID#:** 65      **Comment ID#:** 1153019

**Comment Text:** “Please do not use untested antimicrobials for the mosquitoes. My community is very concerned. I'm sure there are various other holistic solutions even if they cost somewhat more.”

**Correspondence ID#:** 113      **Comment ID#:** 1153020

**Comment Text:** “None of these are reasons to not use the Wolbachia technique, but all of them are reasons to find a better, more sustainable long-term solution. One thing that cannot hurt is to extensively

reforest with 'ohia, 'iliahi, and mamane all terrain between 4500' and 7500'. This will at least provide more habitat and will hopefully allow honeycreeper populations to grow.”

**Correspondence ID#:** 156      **Comment ID#:** 1153021

**Comment Text:** “Better still would be to leap forward to gene drive mechanisms. That effort would be one and done and far more efficient, effective, have a lower cost and be sustainable.”

**Correspondence ID#:** 259      **Comment ID#:** 1152985

**Comment Text:** “Not to mention there are safer ways to sterilize mosquitoes through radiation instead of bacteria.”

**Correspondence ID#:** 281      **Comment ID#:** 1153023

**Comment Text:** “Please consider Cordyceps fungus as a better, safer solution.”

### **A3 (Substantive) - Alternatives - New Alternatives or Alternative Elements**

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***CONCERN STATEMENT:** Commenters suggested the restoration of natural water flow on Maui would be a possible solution to the abundance of mosquitoes on Maui.*

**Correspondence ID#:** 178      **Comment ID#:** 1153053

**Comment Text:** “I believe the grand solution and common denominator here is the restoration of the natural water flow. In example if the streams were replenished and restored there would be a lack of hospitable homes for the mass of mosquitos, thus allowing nature to help rid the problem as well, fishes and other wildlife would eat the larva and nature would run smoothly as she has for thousands of year before us.”

### **A4 (Substantive) - Alternatives - Insufficient Study/Experimental**

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***CONCERN STATEMENT:** Commentors were concerned that there has been insufficient study of the proposed action, that more studies should be completed, and that the proposed action is a “rash” decision.*

**Correspondence ID#:** 124      **Comment ID#:** 1153026

**Comment Text:** “Let's find a solution all together rather than a few making rash decision on everyone else's behalf and well being.”

**Correspondence ID#:** 154      **Comment ID#:** 1153027

**Comment Text:** “Don't you think it would be prudent to see what long-term effects these mosquito bites or any hybrid offspring have on humans? Have you done studies with human subjects to see how these mosquito bites affect us 2-5 years from now?... Why don't you wait a few years and see how the results in Florida are?”

**Correspondence ID#:** 168      **Comment ID#:** 1153031

**Comment Text:** “There have been so many stupid mistakes because the proper research and ecological surveys were not completed. Honestly, proper studies take a lot of time, because the introduction of a

new species into a climate where everything thrives creates generations of potentially unwanted consequences. Please be Pono and respect the Aina and Mother Nature”

**Correspondence ID#:** 366      **Comment ID#:** 1153025

**Comment Text:** “I strongly urge more testing to be done before releasing biopest mosquitoes on Maui.”

***CONCERN STATEMENT:** Commentors were concerned that the proposed project would be an “experiment” that has not been implemented prior.*

**Correspondence ID#:** 383      **Comment ID#:** 1153035

**Comment Text:** “I am strongly opposed to the release of these GMO Mosquitos! You are experimenting with nature and God's creation. This could disrupt the balance of the ecosystem, not to mention, any negative side effects or consequences of the effect on human population. “

**Correspondence ID#:** 407      **Comment ID#:** 1153036

**Comment Text:** “We would like a comprehensive review of the potential effects on the environment, our health, and local wildlife. The people desire more disclosure and analysis before approving such large scale experimentation with natural forces.”

## **EC1 (Substantive) - Environmental Consequences - Wildlife and Habitat**

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***CONCERN STATEMENT:** Commenters expressed concern about impacts to bats and dragonflies that would eat the transinfected male mosquitoes released under the proposed action.*

**Correspondence ID#:** 103      **Comment ID#:** 1153049

**Comment Text:** “What happens to the bats and dragonflies that eat these injected males?”

***CONCERN STATEMENT:** Commenters wanted clarification on the number of bird species protected by the Migratory Bird Treaty Act (MBTA) that are within the project area because there are two different numbers stated in the EA.*

**Correspondence ID#:** 357      **Comment ID#:** 1153058

**Comment Text:** “However, on page 8 of Environmental Assessment (EA) it was stated that there are 8 bird species protected under the Migratory Bird Treaty Act (MBTA) that are within the project area. On page 66 of the EA, it is mentioned that only 7 native and migratory bird species are protected under the MBTA that could be possibly impacted by the proposed action. I would like to confirm the exact number of native and migratory bird species protected under the MBTA that would be within the project area with the potential of being affected.”

## EC2 (Substantive) - Environmental Consequences – Wilderness

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**CONCERN STATEMENT:** *One commenter suggested that under the no-action alternative there would be adverse impacts to visitors trying to experience wilderness solitude due to the presence of biting mosquitoes in wilderness areas and that suppression of mosquitoes would be a benefit to this wilderness quality.*

**Correspondence ID#:** 504      **Comment ID#:** 1153062

**Comment Text:** “I would like to point out that the Minimum Requirements Decision Guide, under Alternative 2 (no action), under Solitude or Primitive and Unconfined Recreation, I do think there would be a negative consequence to taking no action to suppress mosquito populations since mosquitoes prohibit enjoyment of the wilderness for most humans. Furthermore, people enjoy taking photos and watching native birds. Without mosquito suppression, it is very likely that this outdoor recreation activity would be impacted by the reducing bird populations (due to the continued presence of mosquitoes and disease).”

## EC3 (Substantive) - Environmental Consequences - Bioengineering / Genetic Modification

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**CONCERN STATEMENT:** *Commentors were concerned that the introduced mosquitoes would be “genetically modified,” “bioengineered,” or be considered an unsafe “pesticide.”*

**Correspondence ID#:** 41      **Comment ID#:** 1152994

**Comment Text:** “Common sense will tell you by adding more mosquitoes to the islands is a bad idea, let alone genetically modified. Stop genetically altering God's creations!”

**Correspondence ID#:** 221      **Comment ID#:** 1153002

**Comment Text:** “Please take the time to look at all options and evaluation very carefully the impact of bioengineered mosquitoes being released on our beautiful island. Such an action cannot be undone.”

**Correspondence ID#:** 265      **Comment ID#:** 1153003

**Comment Text:** “It is unacceptable that a pesticide should be released onto our Aina that will most likely cause many issues for the land and it's inhabitants including humans. There are many other safe ways to control the population but this isn't it. Can't we use those brilliant scientific minds to find an organic method of control that won't be detrimental to other species? We are supposed to be an evolving species but by using unsafe chemical methods knowing the harm that it can cause is a definite devolution.”

**Correspondence ID#:** 507      **Comment ID#:** 1153133

**Comment Text:** “GMO mosquitos or any unnatural way to keep mosquito population in check can be a major disaster... any GMO animals/insects/plants are bad for the Environment/ Ecosystem, and will be more trouble than it's worth, causing imbalance in Nature and Human existence.”

## EC4 (Substantive) - Environmental Consequences - Introduced or Invasive Species

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***CONCERN STATEMENT:** Commentors were concerned that previous attempts to introduce biological control mechanisms in the past in Hawai'i have had unforeseen and adverse impacts (e.g., mongoose introduction to control rats) and that this will occur with the proposed mosquito releases.*

**Correspondence ID#:** 259      **Comment ID#:** 1152984

**Comment Text:** “As we know Monogoose we're introduced to stop something and it was a HUGE failure on Hawai'i's part. Not doing the due diligence before releasing, now the same is being done with the mosquito? We should learn from our mistakes.”

**Correspondence ID#:** 323      **Comment ID#:** 1152991

**Comment Text:** “This is not the way for us to conserve our native species and environment. Introducing pests to remedy problems has been historically ineffective.”

**Correspondence ID#:** 327      **Comment ID#:** 1152987

**Comment Text:** “I strongly oppose the mosquitos being released into Hawai'i. Adding non indigenous plants and animals have disrupted this delicate ecosystem enough. Beetles, mongoose, rats, deer and goat to make a few. Each one has ruined a part of these islands. Do not make the same mistakes again.”

**Correspondence ID#:** 340      **Comment ID#:** 1152966

**Comment Text:** “This state has a history of trying to solve one problem, then creating an even bigger problem by importing species like the mongoose.”

**Correspondence ID#:** 358      **Comment ID#:** 1152990

**Comment Text:** “Bringing in mongoose to control rats was a terrible idea. This is much worse.”

***CONCERN STATEMENT:** Commentors were concerned that the *Wolbachia* bacteria in the mosquitoes to be released is “foreign” or would be “introduced” to an environment on Maui where it currently does not occur.*

**Correspondence ID#:** 258      **Comment ID#:** 1152960

**Comment Text:** “Introducing foreign species to the islands has backfired every time! You have a very poor track record of success.”

**Correspondence ID#:** 308      **Comment ID#:** 1152961

**Comment Text:** “Introducing any living organism to the environment, cannot be “recalled,” “controlled,” or “eliminated.” Liability for any and all encounters with said introduced organism, must be assumed by the state of Hawaii. These sorts of reckless actions ruin environments. It's in Hawaii's best interest to ban and outlaw all of these sorts of short sighted knee jerk reactions to questionable and dangerous methods of genetic tampering.”

**Correspondence ID#:** 378      **Comment ID#:** 1153034

**Comment Text:** “We are already under siege by the small red fireant, the mongoose, the pigs, the guava beetle, and I am sure there are many more that I am not mentioning here. We need to protect and sustain our precious ecosystem, and not introduce more factors that may destabilize our precarious ecosystem.”

## **EC5 (Substantive) - Environmental Consequences - Wildfire**

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***CONCERN STATEMENT:** Commenters were concerned that wildland fires would be ignited by drones and helicopters.*

**Correspondence ID#:** 62      **Comment ID#:** 1152902

**Comment Text:** “Wildland fires may be ignited by helicopters used for mosquito release...”

**Correspondence ID#:** 819      **Comment ID#:** 1152923

**Comment Text:** “Also on Page 17 in the "Resource Mitigation Measures" section, there is no mention of drones being a potential risk for wildland fires. Lithium batteries are combustible and unlike occupied aircraft, when a drone goes down there is no one nearby to respond. This should be incorporated into the stated mitigations.”

## **EC6 (Substantive) - Environmental Consequences - General Comments**

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***CONCERN STATEMENT:** Commenters suggested that the EA did not analyze the environmental effects of dropping mosquito packaging in the project area.*

**Correspondence ID#:** 388 (Form Letter)      **Comment ID#:** 1153052

**Comment Text:** “The effects of the release of mosquito packaging on the environment have not been addressed.”

## **EC7 (Substantive) - Environmental Consequences - Population Changes and Disease Transmission**

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***CONCERN STATEMENT:** Commentors were concerned that female mosquitoes would be released that could ultimately breed and perpetuate or increase rather than suppress the mosquito population.*

**Correspondence ID#:** 47 (Form Letter)      **Comment ID#:** 1152864

**Comment Text:** “There is NO Guarantee that this project will release ONLY male mosquitoes. Verily Life Sciences projects in Singapore have accidentally released female mosquitoes before, which resulted in the an established lab strain.

<https://www.medrxiv.org/content/10.1101/2021.06.16.21257922v1.full> This fact is NOT Addressed in the Environmental Assessment that you've done.”



**Correspondence ID#:** 493      **Comment ID#:** 1151660

**Comment Text:** “This is a horrible idea. We must protect our island. Hawaii will be overrun if one female escapes.”

**Correspondence ID#:** 546      **Comment ID#:** 1152957

**Comment Text:** “If the population of mosquitoes that carry the incompatible strain of Wolbachia, is not a perfect set of males, there will be some successful mating within this population which will produce offspring that are now carrying the new strain of Wolbachia, in the wild. Call this set of mosquitoes B, and the original set of Culex mosquitoes A. The set of B mosquitoes will be small relative to A, but over time they will no doubt increase. There will eventually be two populations of mosquitoes on Maui, A and B, which are incompatible with each other but both can attack the vulnerable honeycreepers.

The problem here is that at this point releasing further mosquitoes of the B variety won't reduce the B set, but should affect the A set in the intended manner, with the net result that B will grow and A will shrink. A new strain of Wolbachia must then be found that is incompatible with both A and B. But that new set, if it has some females mixed in, will proceed as B did and eventually produce a third colony of Culex mosquitoes in the wild, incompatible with both A and B.

This could go on ad infinitum. It is therefore critical that no females be in the released population. This is not a reason to not do this project but it is something that needs to be addressed.”

***CONCERN STATEMENT:** Commentors were concerned that there is a risk that the release of Wolbachia-infected mosquitoes could increase, rather than diminish, disease transmission within the ecosystem and to humans (e.g., malaria, dengue fever, yellow fever, Zika virus, and West Nile Virus).*

**Correspondence ID#:** 162      **Comment ID#:** 1153048

**Comment Text:** “STOP THE MOSQUITO SUPPRESSION ENVIRONMENTAL ASSESMENT, IMMEDIATLY!!! WHY? Hawaii is NOT vulnerable to dengue fever. Who is vulnerable to the disease is Southeast Asia, Africa, West Bengal, latin America and Western pacific Islands, NOT HAWAII.”

**Correspondence ID#:** 586      **Comment ID#:** 1153038

**Comment Text:** “I have firsthand experience of the fatal dangers of such mosquitoes transmitting dengue fever, West Nile virus and yellow fever in humans. I am opposed to this Biopesticide Experiment as are my thousands of clients and friends in Hawaii.”

**Correspondence ID#:** 843      **Comment ID#:** 1153041

**Comment Text:** “The Southern House Mosquito (Culex quinquefasciatus) slated for import transmits avian malaria parasitic disease to birds and West Nile virus to both birds and humans.”

**CONCERN STATEMENT:** *Commentors were concerned that transinfected Wolbachia will make its way into other mosquito or other insect species non-maternally, i.e. via “horizontal transfer.”*

**Correspondence ID#:** 62      **Comment ID#:** 1152887

**Comment Text:** “Horizontal transmission of the introduced bacteria (non-hereditary spread of an infectious agent from one group or individual to another, directly or indirectly) has been documented in peer-reviewed studies. Horizontal transmission may cause the creation of introduced-strain-infected females in the wild. Unexpected, dangerous evolutionary events may occur. The capacity for evolutionary offspring to spread disease is unknown. Horizontal transmission and evolutionary events are documented in a 2020 study out of Singapore, “Wolbachia infection in wild mosquitoes (Diptera: Culicidae): implications for transmission modes and host-endosymbiont associations in Singapore” – Huicong Ding, Huiqing Yeo, Nalini Puniamoorthy (BMC, 12/09/2020).

<https://parasitesandvectors.biomedcentral.com/articles/10.1186/s13071-020-04466-8>”

**Correspondence ID#:** 388 (Form Letter)      **Comment ID#:** 1152851

**Comment Text:** “The biopesticide mosquitoes come with many risks, including horizontal transmission of the introduced bacteria strain, increased pathogen infection in mosquitoes, irreversible evolutionary events, population replacement, accidental release of lab-reared females, creation of lab-strain females in the wild, horizontal gene transfer, biopesticide drift, and mosquitoes becoming a better vector of avian malaria and/or West Nile Virus (human and bird). Peer-reviewed studies document these concerns.”

**CONCERN STATEMENT:** *Commentors were concerned that horizontal gene transfer may occur within the transinfected mosquitoes and unknown evolutionary events may occur as a result.*

**Correspondence ID#:** 47 (Form Letter)      **Comment ID#:** 1152867

**Comment Text:** “This mosquito has been shown to Create ANOTHER Species of Mosquito through horizontal gene transfer. <https://bmcbgenomics.biomedcentral.com/articles/10.1186/1471-2164-10-33>.”

**Correspondence ID#:** 62      **Comment ID#:** 1152887

**Comment Text:** “Horizontal gene transfer of Wolbachia DNA to other invertebrates may occur (the movement of genetic information between organisms – a process that includes the spread of antibiotic resistance genes among bacteria, fueling pathogen evolution)”

**Correspondence ID#:** 512      **Comment ID#:** 1152930

**Comment Text:** “Some of the possible dangers include horizontal transmission of the introduced bacteria strain(1), increased pathogen infection in mosquitoes(2), irreversible evolutionary events(1), population replacement(3) (lab-bred mosquitoes replacing existing wild mosquitoes), accidental release of lab-reared females(3), creation of lab-strain females in the wild(1), horizontal gene transfer(4), biopesticide drift, and mosquitoes becoming a better vector of avian malaria(2) and/or West Nile Virus(5) (human and bird). Peer-reviewed studies document precedents for these concerns.”

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## EC8 (Substantive) - Environmental Consequences - Environmental Justice and Native Hawaiian Concerns

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**CONCERN STATEMENT:** *Commentors were concerned that Native Hawaiian concerns, including Environmental Justice, were not appropriately addressed and that they would be disproportionately affected by the project.*

**Correspondence ID#:** 388 (Form Letter)      **Comment ID#:** 1152853

**Comment Text:** “Environmental Justice is a concern, and potential disturbances of traditional cultural practices are noted in the EA. Seven Native Hawaiian lineal descendants and cultural experts interviewed all expressed concerns about the impacts and effects this project could have on cultural resources and traditions, native birds, public health, wildlife, and our fragile ecosystems. As a result of their location, cultural practices, and other factors, Native Hawaiians may have atypical or disproportionately high and adverse human health impacts and environmental effects from exposure to the biopesticide.”

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## EC9 (Substantive) - Environmental Consequences - Human Health and Safety

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**CONCERN STATEMENT:** *Commentors were concerned that potential impacts to public health and safety, largely from a concern of perceived increased risk of disease transmission particularly over the long term, were not sufficiently addressed.*

**Correspondence ID#:** 81      **Comment ID#:** 1152977

**Comment Text:** “There are no published safety studies showing that the lab mosquitoes won't be better at transmitting West Nile Virus (WNV) to humans and birds, should WNV become established in Hawaii. One study has already shown that Wolbachia enhances West Nile Virus infection in one species of Culex mosquito.”

**Correspondence ID#:** 117      **Comment ID#:** 1152970

**Comment Text:** “Please oppose the mosquito experiments. This is a significant threat to the environment and human health.”

**Correspondence ID#:** 197      **Comment ID#:** 1153223

**Comment Text:** “If Wolbachia bacteria-infused mosquitoes are going to be on Maui, they will soon be on the other Hawaiian islands. This bacteria strain is alleged to cause infertility in mosquitoes. Last I heard there was no word on what it does when injected into human bloodstreams by mosquitoes.”

**Correspondence ID#:** 215      **Comment ID#:** 1152979

**Comment Text:** “The threat to the public health and visitors health is real and should be thoroughly investigated before even attempting to do an experiment like this.”