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OFFICE OF THE
COUNTY CLERK

June 5, 2019

Office of Council Services
County of Maui
200 South High St., Room 703
Wailuku, HI 96793

Re: Performance and Fiscal Audit of the Maui Invasive Species Committee

Dear Chair King and Members of the County Council,

Pursuant to Purchase Order No. 19-285, Spire Hawaii LLP has conducted and completed a performance and fiscal audit of the Maui Invasive Species Committee.

Attached to this transmittal is a copy of our report, dated and originally transmitted to the Office of Council Services on April 22, 2019.

Thank you for the opportunity to serve you and the County of Maui.

Sincerely,

A handwritten signature in black ink, appearing to be "TK" or "Tyler Kimura", written over a horizontal line.

Tyler Kimura
Partner

Spire Hawaii LLP

Performance and Fiscal Audit of the

Maui Invasive Species Committee



April 22, 2019



Preface

This performance and fiscal audit of the Maui Invasive Species Committee (“MISC”) was designed to examine the use, management and expenditure of public funds relating to environmental protection and coqui frog eradication conducted by MISC.

We would like to thank all who contributed data to this report, especially MISC personnel and the Maui Office of Council Services.

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Executive Summary

The Maui Invasive Species Committee (“MISC”) is a project of the University of Hawai‘i-Pacific Cooperative Studies Unit (“UH-PCSU”) that works to prevent, control or eliminate threatening invasive plant and animal species in Maui County.

MISC received four grants from the County of Maui (“the County”) Office of Economic Development (“OED”) for environmental protection (“Environmental Protection Grants”) and coqui frog eradication (“Coqui Grants”) during fiscal years (“FY”) 2017 and 2018.

Purpose	Environmental Protection		Coqui Frog Eradication	
Grant Number	G4505	G4632	G4504	G4594
Period	1/7/17 - 3/31/18	12/1/17 - 3/31/19	1/1/17 - 1/31/18	12/1/17 - 3/31/19
Amount	\$895,000	\$895,000	\$300,000	\$750,000

Our audit examined the use, management and expenditure of public funds relating to environmental protection and coqui frog eradication efforts conducted by MISC. The audit sought to evaluate whether the number of coqui frog colonies have increased, decreased or remained the same; whether MISC has fulfilled the scope of each grant and expended funds appropriately; and the manpower, staffing and utilization of MISC, including actual hours of field work.

Our audit found:

1. MISC has eradicated 19 coqui frog colonies but the Māliko Gulch infestation area remains a challenging area to control. Of the 10 remaining active locations, Ha‘ikū and Māliko Gulch are the most heavily infested, with coqui frogs continuing to spread to new locations in Ha‘ikū. MISC currently estimates that coqui infest approximately 1,185 acres in and around Māliko Gulch. Communicating the comprehensive results of its coqui control efforts has not been a simple task for MISC, both in its regular reporting to OED as well as during this audit. The frog’s size, vocal habits, dangerous or inaccessible habitats, and other environmental conditions make counting coqui frogs an inherently difficult task with limitations on precision. MISC’s current estimates of the number of coqui frogs are based on manual counting of coqui frog vocalizations, which primarily occur at night. MISC has attempted to report on its efforts in various ways, including the total number of colonies, number of colonies eradicated, acres infested and the number of frogs present before and after treatment. However, the results reported by MISC do not clearly communicate the overall magnitude of the coqui frog problem in the County, which leads to our second finding.

2. The performance measures of the Coqui Grants do not allow for an assessment of whether MISC is succeeding or failing in containing or eradicating coqui frogs in Maui County. Despite quarterly and annual reports provided by MISC to the OED describing its efforts, the fact that the County felt an audit was necessary to determine whether coqui frog colonies have increased, decreased or remained the same highlights an inherent flaw in this reporting process. MISC is not required to provide actual or estimated figures of coqui frogs, colonies or infested acres in its reports to OED. Rather, the Coqui Grants' performance measures are: 1) number of acres treated; 2) number of staff hours focused on the Māliko Gulch project; and 3) gallons of citric acid applied. As a result, OED receives data that is not easily translated into measurable results. MISC's reporting of hundreds of acres sprayed, thousands of field work hours and the application of hundreds of thousands of gallons of citric acid may sound substantial. However, without any context or goals to measure these figures against, it is difficult to determine the ultimate meaning or impact of MISC's efforts.
3. Finally, performance measures established by OED for MISC need to consider that as an agency subject to leave policies similar to the State and counties, MISC may be required to use a significant portion of the grant funds to pay for leave time. During calendar year 2018, MISC personnel spent approximately 47,360 hours (72.5% of total hours) on programmatic activities such as field work, data collection and outreach and education. Approximately 5,200 hours (8%) of personnel hours was spent on administrative operational support functions, and 12,767 hours (19.5%) was spent on leave, which includes vacation, sick, holiday and administrative leave. We did not analyze the leave taken by all employees and are not opining on the appropriateness of such leave. However, the County should be aware that the number of field work hours available under the grants may be limited by the amount of leave afforded to MISC personnel as Research Corporation of the University of Hawai'i ("RCUH") employees. The County should be mindful, however, that using a governmental entity such as MISC for these efforts likely also leverages certain efficiencies, resources and connections with other government and research entities that a third-party private or not-for-profit organization may not have. OED and MISC should consider the number of programmatic hours available when setting performance measures for the grants. OED should understand what is possible to accomplish within available programmatic hours so that manageable expectations can be set for the County's invasive species eradication efforts.

Invasive species and coqui frog proliferation remain serious threats to the environment of Maui County. With over 47,000 hours of programmatic hours spent in 2018, there is little doubt that MISC's efforts have had some impact on containing and eradicating such species. However, communicating exactly *how much* impact MISC's efforts have had remains a challenge for MISC and the County. We recommend that MISC and OED work together to identify performance measures that provide the County with sufficient, consistent information that clearly demonstrates the magnitude and impact of MISC's efforts.

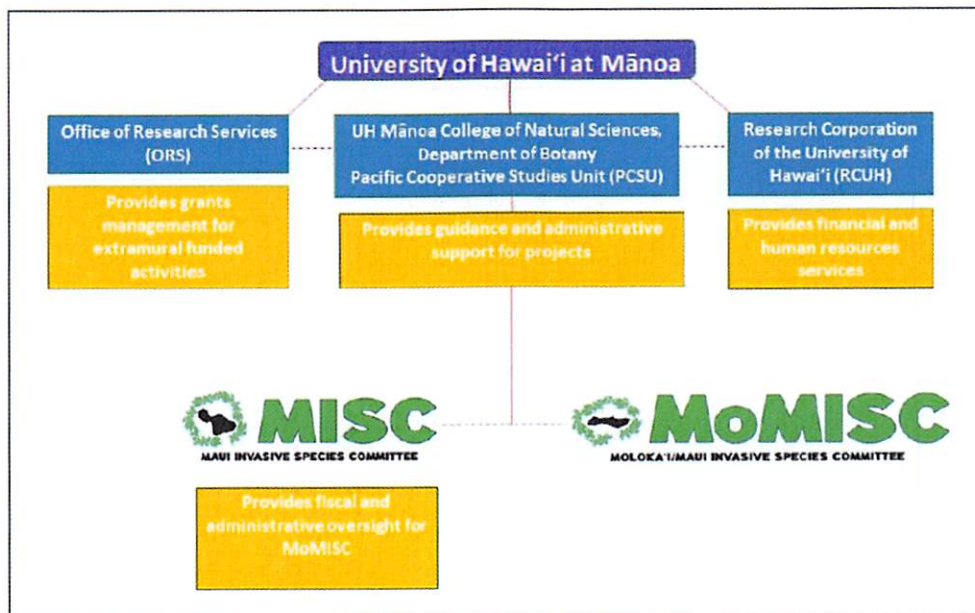
Chapter 1

MISC Background

The Maui Invasive Species Committee (“MISC”) is a project of the University of Hawai‘i-Pacific Cooperative Studies Unit (“UH-PCSU”). It is a “voluntary partnership of government, private and non-profit organizations, and concerned individuals working to prevent, control, or eliminate the most threatening invasive plant and animal species to protect Maui’s watersheds, ecological resources, agriculture, and community.”¹

The Research Corporation of the University of Hawai‘i (“RCUH”) provides administrative services, including personnel (hiring, payroll, etc.), purchasing and accounting, and insurance for MISC. MISC staff are RCUH employees. MISC management and administrative staff work closely with PCSU in the day-to-day management of the program and seek RCUH guidance as needed.

ORGANIZATIONAL CHART: MISC, UNIVERSITY OF HAWAII, PCSU & RCUH



There are approximately 18 MISC members. The current chair represents the Department of Land and Natural Resources (“DLNR”), the vice-chair represents the State Department of Agriculture and members represent the Maui Forest Bird Recovery Project, The Nature Conservancy, the U.S. Fish and Wildlife Service, UH-PCSU, Tri-Isle Resource Conservation and Development, the National Park Service, the UH College of Tropical Agriculture and Human Resources and the County of Maui. MoMISC is the Moloka‘i subcommittee of MISC.

¹ MISC website, mauiinvasive.org.

The following table shows the roles and responsibilities of various positions within MISC.

Position	Roles and Responsibilities
MISC Manager	Provides overall project management and staff supervision, provides vision and leadership and develops proposals and prepares project reports.
PCSU Special Projects and Development	Provides project guidance, partner development and relations.
Molokaʻi / Maui Invasive Species Committee (“MoMISC”) Coordinator	Responsible for overall project management for operations on Molokai, including outreach. Supervises staff of four and ensures strong partner support.
MISC Operations Manager	Responsible for developing and ensuring appropriate on-the-ground implementation to meet project goals and objectives, project safety officer and helicopter manager.
MISC Program Specialist	Coordinates field and management logistics; human resource management and provides fiscal management, tracking and evaluation.
MISC PR & Education Specialist	Develops and implements comprehensive outreach and education program, develops displays and outreach materials, works with print and broadcast media on invasive species messages, oversees Hōʻike o Haleakalā curriculum project.
MISC GIS Data Analyst	Oversees and provides quality control for data collection, entry and analysis. Also manages little fire ant project. Uses existing data to provide maps to guide field operations, develops database and geospatial analytical tools, prepares comprehensive analyses for publication and presentation.
MISC Plant Coordinator	Supervises Field Crew Leaders and Invasive Species Associates. Develops and implements appropriate field techniques for detection and control of target species. Ensures safe operations in the field. Compiles data for entry into MISC database and provides summaries for reports.
MISC Coqui Coordinator	Coordinates field and management logistics for coqui. Interfaces with landowners. Supervises Field Crew Leaders and Coqui Associates. Develops and implements appropriate field techniques for detection and control of coqui. Ensures safe operations in the field. Compiles data for entry into MISC database and provides summaries for reports.
Invasive Species Field Crew Leaders	Provide direction for crews in the field under the direction of the Field Coordinators.

MISC Early Detection Specialists	Develop and implement methods for the early detection of incipient weed and insect species. Identify and collect new specimens. Assist with related report writing.
MISC & MoMISC Invasive Species Associates	Conduct ground-based and aerial surveys for MISC and MoMISC target species using GPS units to record all data. Implement manual and chemical control techniques to remove target species. Work occurs in residential, rural and remote locations and requires hiking and use of helicopters. Participate in outreach activities as needed.

MISC Grants

MISC was the recipient of grants from the County OED for environmental protection in FY 2017 (Grant G4605) and FY 2018 (Grant G4632) (“Environmental Protection Grants”). Each grant was for \$895,000.

MISC also received two grants specifically designated for coqui frog eradication, especially near or around Māliko gulch (“Coqui Grants”). Grant G4504 for \$300,000 was awarded for FY 2017 and Grant G4594 for \$750,000 was awarded for FY 2018. The following table summarizes the grants awarded to MISC during the audit period.

Purpose	Environmental Protection		Coqui Frog Eradication	
Grant Number	G4505	G4632	G4504	G4594
Period	1/7/17 - 3/31/18	12/1/17 - 3/31/19	1/1/17 - 1/31/18	12/1/17 - 3/31/19
Amount	\$895,000	\$895,000	\$300,000	\$750,000
Goals	1. Contain or eradicate at least 15 invasive plant species.		1. Maintain control operations in Māliko gulch. ²	
	2. Contain or eradicate coqui frogs on Maui and Molokaʻi. Respond to other invasive vertebrates. ³		2. Increase community involvement in detection and control of coqui frogs.	
	3. Limit the spread of banana bunchy top virus (BBTV).			
	4. Prevent the establishment of the little fire ant (LFA) in Maui County.			
	5. Educate and engage the public on invasive species issues.			

² Grant G4594 expanded goal number 1 to include responding to other reports of coqui.

³ Grant G4594 changed “Respond to other invasive vertebrates” to “Maintain the ability to respond to other invasive vertebrates.”

Grant Administration

All MISC grants are submitted and approved through the University of Hawai'i ("UH") system. This requires approval from PCSU, the College of Natural Sciences, UH Office of Research Services and the funding agency. Upon grant approval, the College of Natural Sciences establishes a PCSU account for MISC. Funds are administered through a monthly reimbursement process. Invoices are submitted to the County OED for expenses already incurred and paid by MISC.

Certain expenditures are specifically identified in the grants, such as salaries and benefits for field associates, pounds of citric acid, hours of aerial surveys or a new vehicle. Other expenditures are not specifically identified and may fall under a general "Supplies" category in the grant budget. These items may include paper, headlamps, utilities or gas. All expenditures must be approved by the MISC Manager in consultation with the MISC Program Specialist.

All payments are reviewed by PCSU fiscal staff and must have the written approval of the PCSU Principal Investigator or designee. Final approval is given by the designated RCUH Fiscal Officer before funds are reimbursed. In addition to inputting all fiscal transactions into their online system, MISC also internally tracks all expenditures for real-time knowledge of account balances.

Audit Objectives, Scope and Methodology

By Resolution No. 18-433, passed on December 12, 2018, the Council of the County of Maui utilized its investigative powers to authorize the Council Chair to commission an audit to examine the use, management and expenditure of public funds relating to environmental protection and coqui frog eradication conducted by MISC.

Resolution No. 18-433 notes that MISC was awarded grants in fiscal year 2017 and 2018 for environmental protection and coqui frog eradication, that the County has received complaints regarding the spread of coqui frogs in the Haiku area, and that members of the community have expressed concerns of the spread of invasive species and the need for better environmental protection. The resolution states that the Council requests an audit to provide clarity on the effectiveness of the grants and also help to provide comprehensive knowledge of the progress in protecting the County's environment.

This performance and fiscal audit of MISC examines the use, management and expenditure of public funds relating to environmental protection and coqui frog eradication efforts conducted by MISC from July 1, 2016 to June 30, 2018. The audit objectives and scope are as follows:

- Review the objectives, goals and measurements to fulfill the scope of the grants. Determine whether the scope of each grant has been fulfilled and the funds provided to MISC have been appropriately expended.
- Review and analyze manpower, staffing and utilization, including actual hours of field work.

- Review the quarterly and final reports related to each grant, if available, submitted by MISC. Determine whether the grants provided to MISC have been utilized accordingly and indicate whether the number of coqui frog colonies have increased, decreased or remained the same.

We developed an overall audit plan and risk-based strategy to address the audit objectives, which included three distinct stages: planning, fieldwork and reporting.

The planning stage involved obtaining an understanding of MISC as an organization, the grant agreements with the County and MISC's efforts to fulfill the grant requirements. We reviewed the executed grant agreements between UH and OED, MISC quarterly reports, descriptions of key personnel and sample invoice packets for both payroll and out-of-pocket expenses.

We conducted in-depth interviews with the MISC Manager, PCSU Special Projects and Development Manager and the MISC Program Specialist.

To substantiate MISC's efforts in accordance with the grants, we requested and analyzed the following documents from MISC:

- Support for total acres infested with coqui frogs.
- Activity logs and list of crew members and their time sheets for one of the priority work area within Māliko Gulch.
- Time sheets for field staff and the coqui coordinator from a randomly selected month for grant G4594.
- Time sheets for all personnel from a randomly selected month for grant G4632.
- Support for the control figures of two randomly selected invasive plants as part of grant G4632.
- Support for the 292 banana bunch top virus ("BBTV") infected plants MISC controlled as reported in their October through December 2018 report.
- Example of a MISC survey conducted to identify specimens of ants and an explanation of the active controls used to ensure their elimination.
- A summary and break down of all MISC personnel time for 2018.

Our work was conducted pursuant to the AICPA's Statement of Standards for Consulting Services, codified as CS section 100. Under CS sections 100.02 and 100.05, the methodology for a consulting engagement is to develop findings, conclusions and recommendations based on fact-finding. The standards also require the use of problem solving, assessment of alternatives, and formulating recommended courses of action with the objective of providing advice or technical assistance for the use and benefit of the client.

Information deemed confidential under the State open records law (HRS chapter 92F) was omitted from this report. The determination of whether information was confidential was based on Office of Information Practices ("OIP") Guideline No. 3, effective September 7, 2011 and OIP memorandum dated May 1, 2002, "OIP Guidance Regarding Disclosure of Agency Records and Information to Auditors." Under the guidance of these documents, the following were omitted as confidential: MISC employee names, addresses and other personal identifiers, MISC employee social security numbers and the actual base rates of pay and gross salaries for MISC employees.

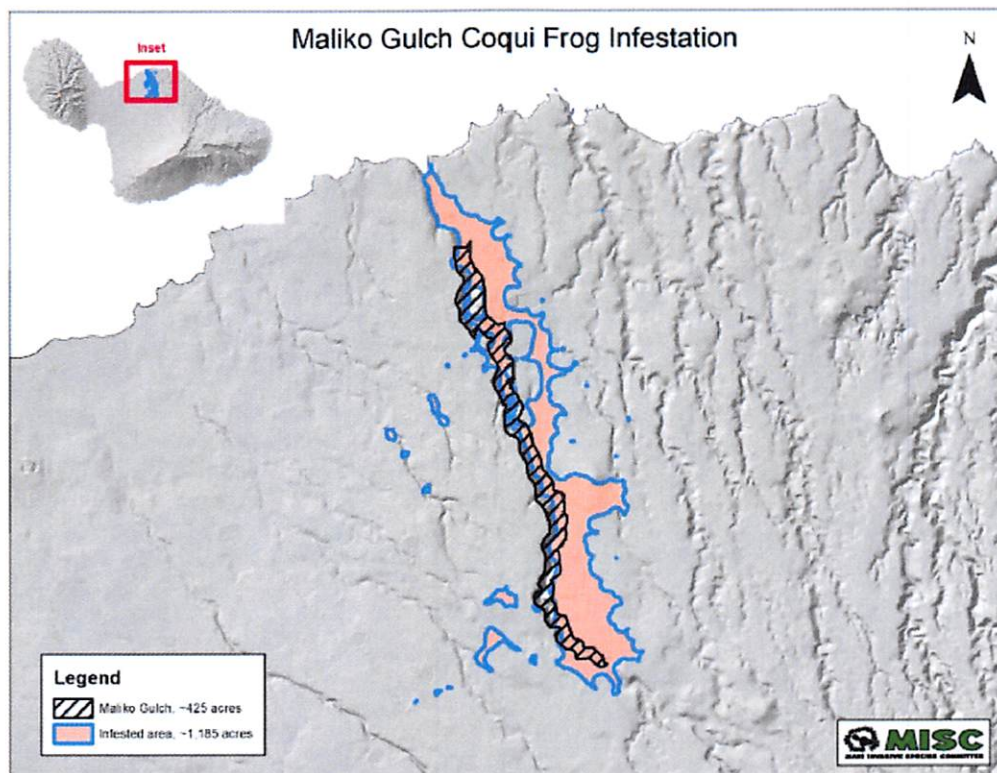
Chapter 2

Audit Findings and Recommendations

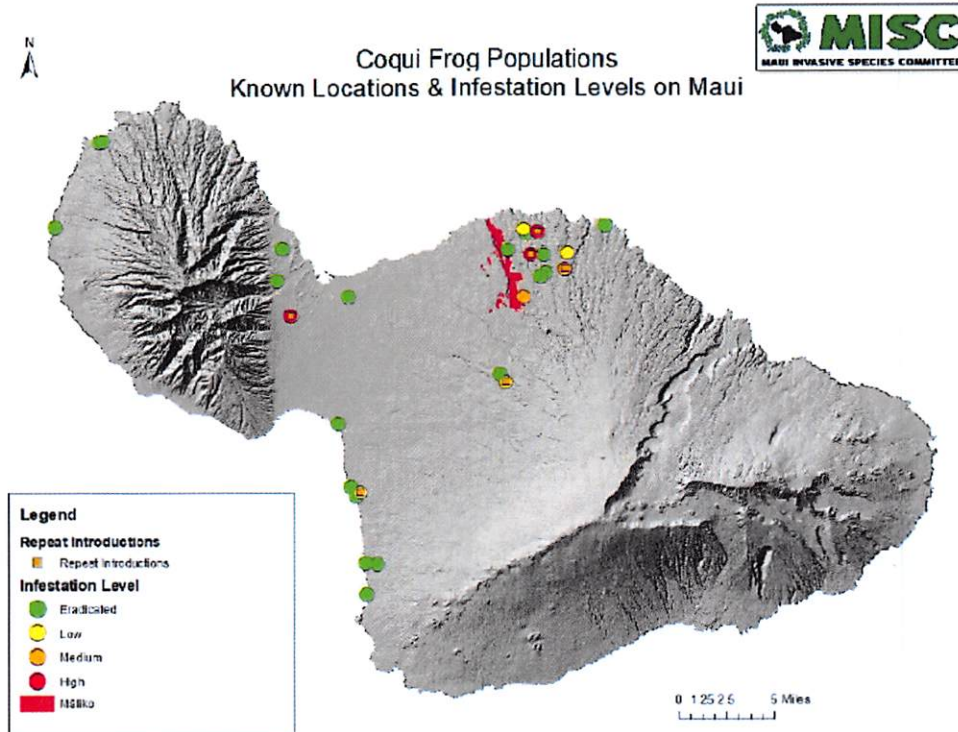
Finding 1: MISC has eradicated 19 coqui frog colonies but the Māliko Gulch infestation area remains a challenging area to control.

One of the objectives of this audit is to assist in determining whether coqui frog populations in Maui County have increased, decreased or stayed the same. While this may seem like a simple question that warrants a simple answer, it should be understood that counting coqui frogs is an inherently difficult task that is not easily measured.

The number of coqui frogs in a given area is generally estimated by counting how many vocalizations can be heard. Typically, however, only male frogs vocalize, and do so primarily at night. Coqui often form habitats in dense, hard to penetrate vegetation, and have established populations in remote and hard to access areas of Maui County, primarily Māliko Gulch. MISC estimates that approximately 1,185 acres in an around Māliko Gulch are currently infested with coqui frogs, as shown in the map below:



In the October-December 2018 Quarterly Report for Coqui Grant G4594, MISC stated there were 10 active coqui frog populations and 19 other populations that had been eradicated, as shown below:



As shown in the table of 19 eradicated sites to the right, the complete eradication of an infested site can take up to 10 years depending on the level of infestation, site characteristics and site access.

Site Name	Control Start	Eradicated	Acres Infested
Kahului Store	2004	2006	0.3
Huelo Honopou	2004	2008	16.5
Kīhei "C" Nursery	2004	2008	8.1
Kā'anapali Resort	2005	2007	0.3
Ha'ikū Post Office	2005	2006	0.8
Ha'ikū "H" Gulch	2005	2007	1.3
Kapalua Flemings	2005	2008	4.4
Junkyard	2005	2009	4.7
Kapalua Resort	2005	2009	3.5
Kīhei "P" Nursery	2006	2007	3.4
Waihe'e	2007	2009	3.3
Kīhei "K" Nursery	2007	2017	2.7
Wailea "H"	2008	2013	0.4
Mākena	2008	2018	0.7
Wailea "P"	2012	2016	0.5
Kula Kulamalu	2014	2017	1.8
Ha'ikū "K" Site	2015	2016	0.4
Ha'ikū "Coco"	2015	2018	3.0
Wailuku "E"	2016	2017	0.5

Table 1. Coqui Frog Eradication Sites

When posed with the question of whether coqui frog populations have increased, decreased or stayed the same during our audit period, MISC stated: “The short, but nuanced, answer to your question is ‘yes’: coqui populations have increased, decreased, and stayed the same since 2017, depending on the level of infestation at any particular site and resources available.” MISC’s answer highlights the difficulty in not only counting coqui frogs but also the need to evaluate individual sites in order to determine progress. MISC provided the following analysis of the average number of coqui recorded before and after citric acid treatment during 826 visits to infested sites.

Before control operations and citric acid treatment begin at an infested site, MISC staff estimate the number of coqui present. After treatment, staff estimates the number of coqui still vocalizing (if any) within the treated area. Staff also records an estimate of the number of coqui successfully controlled within the treated area. Finally, staff estimates the number of coqui remaining on the same site outside of the treatment area. The scale for estimating the level of infestation includes: none; 1, 2, 3, 4, or 5; 6-10; 11-20; 21+; and 63+.

Over the period from January 2017 through March 2019, MISC compiled data of 826 visits where treatment activities occurred. The estimated number of coqui frogs decreased from an average of about 18 frogs before treatment to two frogs after treatment.



Figure 2. Coqui frog site visit audible survey records pre and post treatment 1/2017 – 3/2019

However, MISC notes it has not established an effective way to measure change at heavily-infested sites. As such, its current system fails to adequately capture a decrease from thousands of frogs to hundreds of coqui present at a site because both levels would be classified as 63+ (which could be hundreds or thousands of frogs). MISC is currently exploring the potential use of acoustic monitors to better capture this information.

MISC states that nine active sites showed decreasing numbers of coqui present, using the average maximum number of coqui recorded as an indicator of change over time. The remaining sites are the most heavily infested areas of Maui – Ha‘ikū and Māliko Gulch. Coqui have continued to spread to new locations in Ha‘ikū. Numbers remain high at many sites, which MISC explains is to be expected during initial stages of control. MISC further explains that the pace and scale of its eradication efforts is dictated by the level of funding it receives. As such, MISC can only address subsets of the Māliko Gulch infestation in a given year.

When asked whether 100% eradication of coqui frogs was achievable, MISC personnel did not provide a definitive answer, but stated that they continually re-evaluate their goals based on resources and funding. In a 2019 presentation shown here, MISC stated that it would cost between \$4.6 million to over \$15 million to eradicate coqui frogs from Māliko Gulch.

Communicating the overall progress of fighting the spread of coqui frogs remains a difficult task for MISC. Despite quarterly and annual reports provided by MISC to the OED describing its efforts, the fact that the County felt an audit was necessary to determine whether coqui frog colonies have increased, decreased or remained the same highlights an inherent flaw in this reporting process. MISC is not required to provide actual or estimated figures of coqui frogs, the number of colonies, or acres infested in its reports to OED.

The frog’s size, vocal habits, habitats in dangerous or inaccessible terrain, and other environmental conditions make counting coqui frogs an inherently difficult task. As a result, MISC has attempted to measure coqui frog populations in various ways, including the total number of colonies, number of colonies eradicated, and acres infested. However, the results reported by MISC do not clearly communicate the overall magnitude of the coqui frog problem in the County.

COST ESTIMATE VARIABLES:

1. **Cost per acre: \$1,550-2,000 per treatment (citric acid + labor)**
2. **Pounds/gallons of citric acid per acre per treatment: 765 (up to 975)**
3. **Person-hours per acre treated: 30 (up to 50)**
4. **Infested acres: 1,000 (up to 2,200)**
5. **Treatments needed to eradicate coqui: 10 (up to 20)**
6. **Revisit interval: 4 to 6 weeks**

Total cost for eradication of coqui frogs from Māliko Gulch ranges from **\$4.6 million to over \$15 million.**

Finding 2: The performance measures under the Coqui Grants do not allow for an assessment of whether MISC is succeeding or failing in containing or eradicating coqui frogs in Maui County.

A performance measure is generally defined as a quantifiable indicator used to assess how well an organization or business is achieving its desired objectives. Performance measures are often used to assess operating efficiency and effectiveness to provide an objective view of how an organization is operating and whether improvement is necessary.

The Coqui Grants have two primary goals: 1) maintain control operations in Māliko Gulch and 2) increase community involvement in detection and control of coqui frogs. The objectives, action steps and performance measures of each goal of the Coqui Grants are shown below:

Goal:	Main control operation in Māliko Gulch	Increase community involvement in detection and control of coqui frogs
Objective:	Reduce infestation levels and stop the current spread, with the eventual goal of eradication.	Landowners assist in habitat removal and coqui control.
Action Steps:	<ol style="list-style-type: none"> 1. Utilize management units to define and prioritize geographically-based operations. 2. Maintain staff capacity. 3. Implement expanded operational schedule to detect and control coqui frogs using appropriate methods depending on land ownership and terrain considerations. 	<ol style="list-style-type: none"> 1. Using geographically-based community groups, expand outreach efforts to educate local residents and encourage participation. 2. Provide residents with citric acid, equipment, training and follow-up.
Performance Measures:	<ol style="list-style-type: none"> 1. Number of acres treated 2. Staff hours focused on Māliko project 3. Gallons of citric acid applied 	<ol style="list-style-type: none"> 1. Number of landowners assisting with control 2. Number hours contributed to habitat removal or control operations 3. Pounds of citric acid distributed to residents 4. Number of outreach activities

The following table shows how MISC has reported on its performance measures from July 2014 through December 2018.⁴

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019 (through December 2018)
Number of acres treated	106	205	353	208	148
Staff hours focused on Māliko project	2,484	3,139	3,933	5,748	3,067
Gallons of citric acid applied	72,701	141,285	154,576	226,008	153,022
Number of landowners assisting with control	4	23	80	51	133
Number of outreach activities ⁵	17	18	17	N/A	N/A
Pounds of citric acid distributed to residents	115	5,431	3,291	4,847	17,865
Volunteer hours donated for habitat removal or control	173	81	501	1,018	217

We understand the performance measures in the Coqui Grants were established jointly by MISC and OED during multiple meetings prior to execution of the grant agreements. While MISC has reported its performance measures in accordance with the Coqui Grants, the performance measures themselves do not provide sufficient context to understand what effect, if any, MISC's efforts are having on the coqui frog population. In other words, it is not readily evident how the number of acres sprayed, field work hours, or gallons of citric acid applied directly correlate to whether MISC is meeting its goal to "reduce infestation levels and stop the current spread, with the eventual goal of eradication."

Further, the performance measures do not have specific goals upon which to gauge success or failure. The reporting of hundreds of acres sprayed, thousands of field work hours and application of hundreds of thousands of gallons of citric acid may sound substantial. However, without any context or goals to measure these figures against, it is difficult to determine the ultimate meaning or impact of these numbers. The number of acres sprayed can also be an unclear statistic, because if the same acre is sprayed multiple times, it is counted multiple times (i.e., each count of acres sprayed may not be a unique acre).

⁴ Figures reported are based on the County of Maui fiscal year July through June and are sourced from the Final Report for Grant G4504 for FY 2015, 2016 and 2017, and Quarterly Reports for Grant G4505 and Grant G4594 for FY 2018 and Quarterly Reports for Grant G4594 for the first six months of FY 2019.

⁵ While the Quarterly Reports for G4505 and Grant G4594 for FY 2018 and the first six months of FY 2019 provide a description of outreach activities MISC performed, the exact number of outreach activities was not clearly reported..

As stated earlier, one of the objectives of this audit is to review the objectives, goals and measurements to fulfill the scope of the grants to determine whether the scope of each grant has been fulfilled and the funds provided to MISC have been appropriately expended.

From a literal reading of the Coqui Grants' goals and objectives, the questions to be answered are:

1. Has MISC maintained control operations in the Māliko Gulch?
2. Has MISC reduced infestation levels and stopped the current spread, with the eventual goal of eradication?
3. Has MISC increased community involvement in detection and control of coqui frogs?
4. Have landowners assisted in habitat removal and coqui control?



Māliko Gulch. Photo courtesy of MISC.

MISC's performance measures appear to support affirmative answers for questions #1, #3 and #4. However, it is not possible to answer question #2 strictly based on the performance measures of number of acres treated, staff hours focused on Māliko project and gallons of citric acid applied.

Because the Coqui Grants do not contain quantifiable performance measure goals, the simple act of reporting the performance measures could be viewed as fulfilling the scope of the grant. Without proper context to evaluate the performance measurements of the Coqui Grants, it is not possible to clearly determine whether MISC has met its goals and objectives or whether the funds provided to MISC have been appropriately expended.⁶

⁶ We reviewed actual expenditures to grant budgets and noted that no budget re-alignments were needed based on PCSU and UH requirements. A re-budgeting needs to be approved if a category deviation is greater than 10% of the total grant amount. Such a re-budget would be proposed by the MISC Manager and approved by the PCSU Finance Manager.

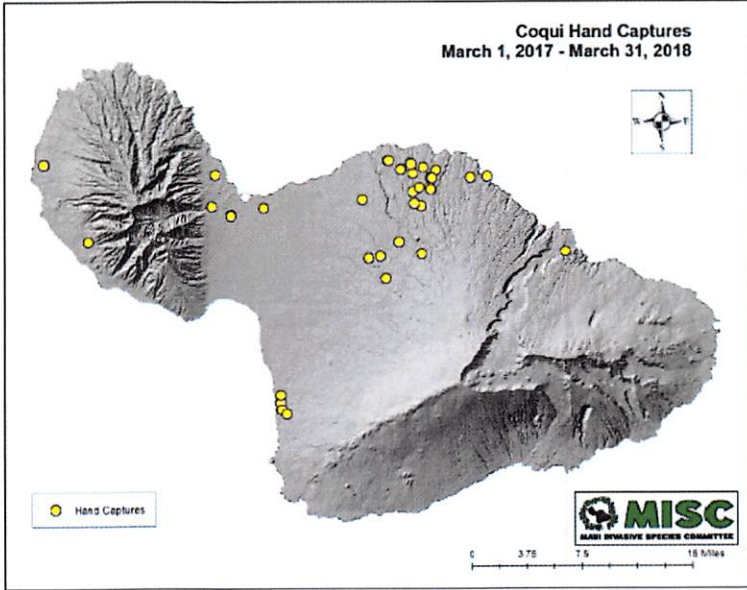
The Environmental Protection Grants provide better performance measures related to coqui frog eradication.⁷ However, MISC's reporting of the performance measures has been inconsistent.

As shown in the following table, the coqui frog-related performance measures of the Environmental Protection Grant provide some context and quantities to measure against (e.g., infestation declines, number of coqui-free businesses, number of trained staff).

Goal	Objectives	Action Steps	Performance Measures
Contain or eradicate coqui frogs on Maui and Moloka'i. Respond to other invasive vertebrates.	1. Detect and remove coqui frogs from all known locations.	1.1 Conduct night-time surveys for coqui frogs. 1.2 Remove coqui frogs using appropriate methods depending on land ownership and terrain considerations. 1.3 Conduct immediate response actions on Moloka'i.	1. Number of new reports and response actions. 2. Coqui decrease in Māliko Gulch. 3. Level of infestation declines at all coqui sites. 4. At least 32 Maui businesses are certified coqui-free.
	2. Limit the spread of coqui frogs via the nursery industry	2.1 Offer coqui-free certification program to qualified businesses. 2.2 Provide marketing materials to participating businesses.	5. MISC has two staff trained in brown tree snake response. 6. Number of mitred conures declines.

⁷ The Environmental Protection Grants and the Coqui Grants have some overlap in goals and objectives related to coqui frog efforts, but the Coqui Grants are focused on efforts in the Māliko Gulch.

The Final Report for Environmental Protection Grant G4505 for FY 2017 reported the following results related to its coqui frog goal:

Performance Measures	Outcomes and Results
<p>Number of new reports and response actions; level of infestation declines at all coqui sites.</p>	<p>Figure 6 shows the locations of coqui controlled largely as a result of new reports. All populations other than Māliko have low numbers of frogs or are in a monitoring phase. MISC monitors population centers for at least one year from the date the last calling coqui was heard before considering the population eradicated.</p>  <p style="text-align: center;">Figure 6</p>
<p>At least 32 Maui businesses are certified coqui free.</p>	<p>Thirty businesses on Maui and one on Molokai are certified coqui-free.</p>
<p>Number of mitred conures declines.</p>	<p>The number of mitred conures has steadily declined.</p>

While the reported outcomes and results provide an idea of how successful MISC has been in accomplishing its goals, MISC could still improve its reporting. For example, providing supporting data to explain “all populations other than Māliko have low numbers of frogs” or how the number of mitred conures (parakeets) has steadily declined would help the County interpret the results.

Also, despite “coqui decrease in Māliko Gulch” being one of the performance measures of Grant G4505, MISC did not provide results related to its Māliko Gulch work in the G4505 Final Report, stating: “Coqui were removed by hand-capture or spraying infested areas. A total of seven acres outside of Māliko were treated and coqui were removed from 39 locations where they had never been found before (Māliko work is covered in reports for grant #4504).”

The “Coqui decrease in Māliko Gulch” continued to be a performance measure in the FY 2018 Environmental Protection Grant, and MISC continued to point readers of these quarterly reports to the Coqui Grant reports. All other performance measures remained the same in the FY 2018 Environmental Protection Grant, including having 32 Maui businesses certified as coqui-free and two MISC staff trained in brown tree snake response.

The quarterly reports for the FY 2018 Environmental Protection Grants provide updates on coqui frog sightings and captures, acres surveyed, coqui-free certified businesses and other invasive vertebrate reports. However, the quarterly reports do not include regular discussion on the status of grant performance measures. As a result, readers must wait until the annual Final Report to see whether performance measure goals were met.

Finally, as discussed earlier, this audit was initiated by the County Council because of, among other things, concerns from the public about the spread of coqui frog populations. As such, OED should be aware that its previous approvals and monitoring of the grants are not designed in a way to provide citizens or county officials sufficient information to assess the spread or containment of coqui frogs in Maui County.

Recommendations:

1. MISC and the OED should agree upon quantifiable performance measure goals that provide meaningful context for County residents to determine whether MISC’s efforts to contain and eradicate coqui frogs are working.
 - a. Vague, overly broad or unrelated metrics pose the risk of garnering adverse reactions from the public and county officials that either 1) no progress is being made; or 2) no one knows if progress is being made.
 - b. It appears that MISC has data that could be used for quantifiable performance measures. For example:
 - i. In MISC’s October through December 2018 report for Grant G4594, MISC reported: “There are currently ten active coqui populations on Maui. A total of 19 other populations have been eradicated. MISC considers populations to be discrete areas where five or more calling coqui are heard. Nearly all active sites (six of ten) are sites that suffer from reintroduction.” Such a discussion of active and eradicated populations provides a quantifiable measurement of MISC’s efforts to address the coqui frog problem. MISC

and OED should consider incorporating the number of active and eradicated populations as a performance measure in future grants.

- ii. MISC's coqui site visitation logs show that MISC personnel estimate the number of frogs before and after treatment. MISC should consider whether a quantifiable metric related to the number of coqui frogs or colonies before and after treatments would be a realistic and reliable performance measure under the Coqui Grants.
 - c. Once quantifiable performance measure goals are set, MISC and the OED should assess the goals to ensure that they appropriately measure progress in meeting the overall goals and objectives of the grants.
2. MISC and the OED should consider implementing a timeline for affected areas to become 100% coqui free, if the goal of eradication of coqui frogs is indeed an achievable and desired goal.
- a. Providing easy-to-understand, big-picture measurements will assist the County in understanding the magnitude of the coqui frog infestation and the impact of MISC's efforts. It is easy to get lost in the details of gallons of citric acid, hours of field work and number of acres sprayed. County decision makers want to know how big the problem is and whether efforts to address the problem are working.
3. OED should ensure it is properly monitoring MISC's reporting of performance measures so it can effectively monitor MISC's success or failure in meeting the grants' goals and objectives.

Finding 3: Performance measures established by Maui County for MISC need to consider that as an agency subject to leave policies similar to the State and counties, MISC may be required to use a significant portion of the grant funds to pay for leave time.

We analyzed a summary of MISC staff time for calendar year 2018 to evaluate MISC’s manpower, staffing and utilization. We also tested MISC’s tracking of staff time by testing MISC’s internal TimeLog database to RCUH employee time/leave certification forms which are used for payroll purposes.

In our testing of data in MISC’s TimeLog database to RCUH employee time/leave certification forms for the month of August 2018, we noted seven variances between the TimeLog data and RCUH timesheets. MISC explained the variances were caused by exempt employees reporting overtime hours worked in the TimeLog (which are not needed for RCUH payroll purposes), or hours were either entered incorrectly or not entered at all in the TimeLog. The net result of these variances was an underreporting of 19 hours of field work and three hours of leave on MISC’s TimeLog. These totals represented less than 1 percent of the hours reported for the month of August 2018.

The following table is a summary of MISC and MoMISC staff time during calendar year 2018 based on data from MISC’s TimeLog database.⁸

	MISC Hours	MoMISC Hours	Total Hours	Percent of Total Hours
Field Work	37,448	4,736	42,184	64.6%
Data / GIS	1,481	192	1,673	2.6%
Outreach and Education	2,518	985	3,503	5.4%
Total Programmatic	41,447	5,913	47,360	72.5%
Operational Support	4,042	1,160	5,202	8.0%
Leave	11,253	1,514	12,767	19.5%
Total	56,742	8,587	65,329	100.0%

⁸ MISC provided data for six MoMISC staff, 35 MISC staff, and combined data for temporary, part-time, intermittent staff and interns. We excluded data for one employee who reported 100% of hours as “leave without pay workers’ compensation” in 2018.

MISC described the categories as follows:

Programmatic:

- **Field Work:** Includes all ground and aerial survey and control work by Field Crew, Team Leaders, Field Coordinators and the Operations Manager, including work on Plants, Vertebrates, Invertebrates, Early Detection. For Field Coordinators and the Operations Manager, this includes time spent managing essential logistical aspects of field operations.
- **Data:** Includes data entry, planning and analysis. This function is central to field operations but is reported separately.
- **Outreach & Education:** Includes all activities related to developing and maintaining support for programmatic objectives, including efforts to affect positive behavioral change by the public in relation to invasive species.

Operational Support: Includes budget development and tracking; grant writing; report writing; partnership development; project oversight; personnel recruitment; training, procurement, payroll, and management.

Leave: Includes vacation, holidays, sick leave, administrative leave (granted by the State during hurricane events), jury duty, etc.⁹

MISC personnel are employed by RCUH and, as such, are subject to RCUH's holiday, vacation and sick leave policies, which are similar to State and county policies. Full-time RCUH employees earn 21 days of vacation and 21 days of sick leave per year.¹⁰ MISC personnel are under RCUH Vacation Plan A, which allows 100% FTE employees to carry over a maximum of 10 days of vacation. There is no maximum to how much sick leave may be carried over. All regular status RCUH employees are afforded 14 holidays per year. Excluding any carryover vacation or sick leave balances, an RCUH employee may take up to 56 days, or 448 hours, of combined leave. A breakdown of the amount of leave taken in 2018, as recorded in MISC's TimeLog database, is shown below:

Amount of Leave Taken in 2018	Number of Personnel	Percent of Total
Less than 160 hours (<20 days)	12	30.0%
Between 161 and 320 hours (21-40 days)	5	12.5%
Between 321 and 448 hours (41-56 days)	9	22.5%
Greater than 448 hours (>56 days)	14	35.0%
Total	40	100.0%

⁹ MISC employees were granted two to three days of administrative leave in August 2018 due to Hurricane Lane.

¹⁰ Employees less than 100% FTE but greater than 50% FTE earn a prorated amount of vacation and sick days based on their FTE.

We did not analyze the leave taken by all employees and are not opining on the appropriateness of such leave. However, the County should be aware that the number of field work hours available under the grants may be limited by the amount of leave afforded to MISC personnel as RCUH employees. The County should be mindful, however, that using a governmental entity such as MISC for these efforts likely also leverages certain efficiencies, resources and connections with other government and research entities that a third-party private or not-for-profit organization may not have.

Recommendations:

1. OED and MISC should consider the number of programmatic hours available when setting performance measures for the grants. OED should understand what is possible to accomplish within available programmatic hours so that manageable expectations can be set for the County's invasive species eradication efforts.
2. MISC should continue to improve its time tracking efforts in its TimeLog database. We understand that MISC has already taken steps to create clearer definitions for consistent reporting, ensure all part-time staff and MoMISC hours are entered into the TimeLog, keep better track of volunteer hours, and create measures to ensure a more accurate match between the TimeLog and RCUH timesheets.