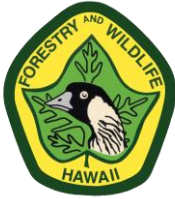
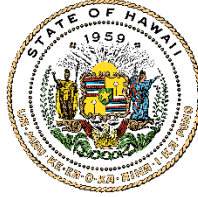


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HISTORIC PRESERVATION  
KAHOOLAWE ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

January 25, 2024

Endangered Species Recovery Committee  
State of Hawai'i  
Honolulu, Hawai'i

**SUBJECT:** Division of Forestry and Wildlife Evaluation of the Kawailoa Wind Power  
Habitat Conservation Plan Implementation During Fiscal Year 2023 +  
Quarters 1 and 2 of Fiscal Year 2024

Dear Committee Members,

The Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW) is respectfully requesting the Endangered Species Recovery Committee (ESRC) to review the Kawailoa Wind Power Habitat Conservation Plan annual report in accordance with the requirements outlined in Section 195D-25, Hawaii Revised Statutes. The annual report was prepared by TetraTech on behalf of Kawailoa Wind Power, LLC (licensee) as part of the obligations of the Kawailoa Wind Power Habitat Conservation Plan (HCP; SWCA 2011) and State Incidental Take License (ITL; ITL-14 Amended).

This submittal is a summary of the annual report and includes comments from DOFAW.

**BACKGROUND**

ITL Licensee: Kawailoa Wind Power, LLC

Project: Thirty WTGs with a total 69-MW energy generating capacity

ITL Duration: January 6, 2012-January 6, 2032 (as end of FY 2023 11.5 years (57.5%) through the permit term)

Table 1. Take Authorization:

<b>Common Name</b>	<b>Scientific Name</b>	<b>Level of Take<sup>1</sup></b>	<b>5-year Take Limit<sup>2</sup></b>	<b>20-year Take Limit</b>
'A'o or Newell's Shearwater	<i>Puffinus auricularis newelli</i>	Tier 1	3 adults/ juveniles & 2 chicks/eggs	3 adults/ juveniles & 2 chicks/eggs
		Tier 2	6 adults/ juveniles & 3 chicks/eggs	6 adults/ juveniles & 3 chicks/eggs
Koloa Maoli or Hawaiian Duck	<i>Anas wyvilliana</i>	Tier 1	4 adults/ juveniles & 4 ducklings	4 adults/ juveniles & 4 ducklings
		Tier 2	6 adults/ juveniles & 6 ducklings	6 adults/ juveniles & 6 ducklings
Ae'o or Hawaiian Stilt	<i>Himantopus mexicanus knudseni</i>	Tier 1	6 adults/ juveniles & 3 fledglings	8 adults/ juveniles & 4 fledglings
		Tier 2	8 adults/ juveniles & 4 fledglings	12 adults/ juveniles & 6 fledglings
'Alae Ke'oke'o or Hawaiian Coot	<i>Fulica alai</i>	Tier 1	6 adults/ juveniles & 3 fledglings	8 adults/ juveniles & 4 fledglings
		Tier 2	8 adults/ juveniles & 4 fledglings	12 adults/ juveniles & 6 fledglings
'Alae 'Ula or Hawaiian Moorhen	<i>Gallinula chloropus sandvicensis</i>	Tier 1	6 adults/ juveniles & 3 fledglings	8 adults/ juveniles & 4 fledglings
		Tier 2	8 adults/ juveniles & 4 fledglings	8 adults/ juveniles & 4 fledglings
Pueo or Hawaiian Owl	<i>Asio flammeus sandwichensis</i>	Tier 1	4 adults & 4 owlets	4 adults & 4 owlets
		Tier 2	6 adults & 6 owlets	6 adults & 6 owlets
'Ōpe'ape'a or Hawaiian Hoary Bat <sup>3</sup>	<i>Lasiurus cinereus semotus</i>	Tier 1	20 individuals	20 individuals
		Tier 2	40 individuals	40 individuals
		Tier 3	60 individuals	60 individuals
		Tier 4	Not applicable	55 individuals
		Tier 5	Not applicable	85 individuals
		Tier 6	Not applicable	20 individuals
'Ua'u or Hawaiian Petrel	<i>Pterodroma sandwichensis</i>	Not Applicable	Not Applicable	19 adults/fledglings and 5 chicks/eggs

Table 2. Status of ITL:

Common Name	Total Observed Take <sup>1</sup>	Estimated Unobserved Take <sup>2</sup>	Incidental Observations <sup>3</sup>	Indirect Take using HCP multipliers	Total Estimated Take as of December 2023 <sup>4</sup>	Total Projected Take at the End of the Permit Term
‘Ōpe‘ape‘a	40	50	2	9	101	159
‘Ua‘u	0	2 adults	-	2 chicks/eggs	2 adults and 2 chicks/eggs	2 adults and 2

<sup>1</sup> Excludes hoary bat takes that were incidental and not observed during systematic monitoring (incidental takes are evaluated as part of the EoA modeling software and therefore accounted for in the unobserved take).

<sup>2</sup> Based on the 80% credible maximum using the following model: Dalthorp, D., M. M. P. Huso, and D. Dail. 2017. Evidence of absence (v 2.0) software user guide: U.S. Geological Survey Data Series 1055.

<sup>3</sup> Carcasses that were found during a routine search, but outside of the designated search area.

<sup>4</sup> Total Estimated Take modeled and confirmed by USFWS

### Mitigation Status:

‘A‘o. Tier 1 mitigation for Newell’s Shearwater as described in the HCP consisted of (1) providing funding for adapting a resetting trap for use in Hawai‘i, (2) field testing traps at a suitable location where predators are known to occur, and (3) supporting a one-year pilot study to provide localized predator control in an area where Newell’s Shearwater are known to be breeding. Item number three was completed for a project on Kaua‘i. Projects that fulfilled these obligations were completed by end of FY 2015.

‘Ua‘u. To mitigate for impacts to this species, Kawaiiloa funded one year of monitoring and predator control at the Hanakāpī‘ai and Hanakoa seabird colonies within the Hono O Nā Pali Natural Area Reserve on Kaua‘i in 2020. Final reports from the Kaua‘i Endangered Seabird Recovery Project and Hallux Ecosystem Restoration LLC for this mitigation project were included in the FY 2021 Annual Report, which confirmed completion of Kawaiiloa Wind’s mitigation obligations for the Hawaiian Petrel.

Koloa Maoli, Ae‘o, ‘Alae ‘Ula, and ‘Alae Ke‘oke‘o. The ‘Uko‘a Wetland mitigation program for Tier 1 mitigation continued for waterbirds during FY 2023. In FY 2016 USFWS and DOFAW provided written confirmation permitting adaptive management for the original waterbird mitigation. Some activities completed for waterbird mitigation at ‘Uko‘a Wetland (e.g., invasive vegetation removal, predator control, fence maintenance) overlap with bat mitigation requirements. In FY 2023, waterbird surveys were conducted weekly from July 2022 through August 2022 and then again from December 2022 through June 2023. A total of 39 waterbird surveys were completed in FY 2023. In addition to the weekly surveys, a biologist conducts waterbird surveys prior to any invasive vegetation control. The purpose of these surveys is to identify if listed waterbird nests or chicks are present in the vicinity of the planned work area. If present, control work is modified to avoid and minimize impacts to endangered Hawaiian waterbirds.

In FY 2023, Hawaiian gallinules (either adults, chicks, or fledglings) were observed on every survey date and were recorded at seven out of the nine PC stations. Two gallinule

breeding events were observed in FY 2023. The breeding event observed in April 2022 resulted in the successful fledging of one gallinule. The second event was observed in late April 2023, so the outcome of this breeding effort has yet to be determined; as of June 30, 2023, one gallinule chick was still present. In total, 14 Hawaiian common gallinule/‘alae ‘ula (*Gallinula chloropus sandvicensis*) fledglings have been recorded at ‘Uko‘a since monitoring began following management. In FY 2023, Hawaiian stilts were observed on 13 of the 39 survey dates. Hawaiian stilt detections have increased in comparison to previous fiscal years, but individual Hawaiian stilt numbers continue to be low. Due to the recent increase in stilt detections, the Project removed invasive *Pluchea* (mostly *Pluchea indica*) within an approximately 1-acre area near PC 4 in FY 2023 to improve stilt nesting habitat. No Hawaiian stilt nests, chicks, or evidence of reproductive activity have been observed at ‘Uko‘a Wetland since comprehensive surveys began. Since comprehensive waterbird surveys begin in January 2017, only one Hawaiian coot has been detected during the surveys; a single adult Hawaiian coot was recorded in March 2017. Although no waterbird take has been recorded at Kawaiiloa to date, the Project is required to replace 20 gallinule fledglings, 24 stilt fledglings, and 20 coot fledglings. As a result of minimal observed breeding events at the site (particularly for stilts and coots), Kawaiiloa Wind is in discussion with USFWS and DOFAW regarding adaptive management of waterbird mitigation.

‘Ōpe‘ape‘a. During FY 2023, acoustic bat surveys continued at the Project and management activities and acoustic bat surveys for Tier 1 mitigation continued at ‘Uko‘a Wetland. At the Project, using the permanent acoustic detectors stationed at WTGs 1, 10, 21, and 25, Hawaiian hoary bats were detected on 248 of 1451 (17.1 percent) detector-nights sampled throughout the 2023 Bat Sampling Period. During the 2023 Bat Sampling Period, elevated detection rates were observed during the lactation reproductive period (mid-June through August), reaching an initial peak during the early post lactation (September) reproductive period. A decline in detection rates occurred following the initial peak in September and the transition to the post-lactation (September to mid-December) reproductive period. In FY 2023, activities associated with Tier 1 bat mitigation at ‘Uko‘a Wetland included invasive vegetation removal, predator control and monitoring of predator presence, fence monitoring and maintenance, bat acoustic monitoring, bat lane maintenance, and insect sampling analysis. In FY 2023, Hapa Landscaping conducted maintenance visits to remove any areas of water hyacinth (*Eichhornia crassipes*) or other invasive vegetation that regenerated in the previously cleared, open water area including water lettuce (*Pistia stratiotes*) and California grass (*Urochloa mutica*). In FY 2023, a total of 119 predators were removed from ‘Uko‘a Wetland including 23 pigs, 79 mongoose, 16 rats, and 1 cat (Grey Boar 2022a, Grey Boar 2022b, Grey Boar 2023a, Grey Boar 2023b). In FY 2023, tracking tunnels were set out in September 2022, December 2022, March 2023, and June 2023. Twenty-five tracking tunnels were used to detect predator presence in FY 2023. Rat activity varied between 8.0 and 22.2 percent and showed the highest activity rates of the predators. Mice and cats were only detected during the September 2022 deployment. During FY 2023, several sections of fence were repaired. During the 2023 Bat Sampling Period (June 2022 to May 2023) of acoustic surveys, Hawaiian hoary bats were detected on 534 nights out of 2,708 detector-nights sampled (19.7 percent). The

annual detection rate in the 2023 Bat Sampling Period was similar to the annual detection rate during the previous sampling year (23.0 percent). During FY 2023, bat lane maintenance occurred on several lanes on November 15 and 16, 2022, and again on January 6, 2023.

A follow-up insect assessment was approved by both agencies in April and May 2021 to compare bat prey availability prior to and after management activities at 'Uko'a Wetland. Insect sampling was conducted from June to September 2021 and nearly 17,700 insect taxa were collected. This insect assessment fulfills the insect monitoring obligation outlined in the Kawaiiloa Wind HCP for Tier 1 mitigation for the Hawaiian hoary bat. The results of this study show that Lepidoptera and Coleoptera are present at 'Uko'a Wetland. Overall, Lepidoptera may be more abundant at 'Uko'a Wetland compared to other insects, with a total of 29,482 moths collected over the study. Other insects that are known to be consumed by the Hawaiian hoary bat, such as Diptera (flies) and Blattodea (termites) (Jacobs 1999, Todd 2012, Pinzari et al. 2019) are also present at 'Uko'a Wetland. This study also found that light traps were the most effective at collecting insects at 'Uko'a Wetland. This result is not surprising given that light traps actively draw insects into the traps. Light traps were particularly effective at collecting Lepidopterans compared to other trap types. In contrast, aquatic emergence traps generally had the lowest capture rates of all trap types. Acoustic detectors at 'Uko'a Wetland have documented year-round use of the area by Hawaiian hoary bats. Insect sampling coincided with the Hawaiian hoary bat lactation and early post-lactation reproductive periods, when elevated detection rates have been detected at 'Uko'a Wetland compared to other times of the year (Tetra Tech 2022). Feeding buzzes have also been recorded at every detector location throughout 'Uko'a Wetland. Additional dietary studies would be needed to determine what prey items are being consumed by Hawaiian hoary bats at 'Uko'a Wetland, but since known and potential Hawaiian hoary bat prey is present and feeding buzzes have been recorded, it is assumed that 'Uko'a Wetland is providing foraging habitat for the Hawaiian hoary bat.

Mitigation for Tiers 2 through 4 is complete. USFWS- and DOFAW-approved bat research projects for Tiers 2/3 mitigation were completed in FY 2022. WEST conducted a multi-year Hawaiian Hoary Bat acoustic survey study to examine the distribution and seasonal occupancy of the Hawaiian Hoary Bat on O'ahu. Although Kawaiiloa Wind paid the remaining funding obligations for this research project in FY 2022, Kawaiiloa provided an additional \$10,000 to WEST in FY 2023 to support continued monitoring of a subset of the deployed detectors during a fifth year. This funding was outside the Tier 2/3 mitigation obligations, which were complete in FY 2022.

Tier 4 Hawaiian Hoary Bat mitigation was completed in FY 2019 with the acquisition and long-term protection of Helemano Wilderness Area.

Tier 5 bat mitigation will consist of the implementation of one or a combination of the following: 1) funding contributions to acquire property that will protect bat roosting and foraging habitat in perpetuity, and/or 2) bat habitat management/restoration to improve bat foraging and/or roosting habitat at the Central Ko'olau area, Helemano Wilderness

Area, Waimea Native Forest, or similar sites. In accordance with the mitigation planning requirements under the HCP Amendment, a Site-Specific Mitigation Implementation Plan for Tier 5 mitigation was submitted to USFWS and DOFAW on May 1, 2020. Kawailoa Wind, however, has continued planning for Tier 5 mitigation and is exploring new options as potential sites for this mitigation utilizing information from recent research and other management/restoration projects.

*Pueo*. A contribution of \$12,500 was made to the Hawai'i Wildlife Center for Pueo rehabilitation in FY 2012. An additional \$12,500 was provided to DOFAW to complete the mitigation obligation in the second quarter of FY 2017. With these and other funds DOFAW funded a Pueo research project in 2017 on O'ahu which was completed in FY 2018 and can be viewed at <https://dlnr.hawaii.gov/wp-content/uploads/2017/10/FW18-Pueo-Rpt.pdf>.

The ESRC made the following recommendations during the FY 2022 annual review meeting to Kawailoa that were incorporated in FY 2023:

- Continue to have close communication with both the agencies and ESRC about Kawailoa's plans and proposals regarding the decision to lower the take number of waterbirds.
- Encourage Kawailoa to have Tier 5 for bat mitigation ready as they have hit the 75% mark in Tier 4. In preparation for the likely possibility of hitting Tier 5.

The ESRC made the following recommendations during the FY 2022 annual review meeting to Kawailoa that have not been incorporated in FY 2023:

- The request to lower the take amount for waterbirds is a reasonable request, the ESRC members would like to see the development of a plan B. This plan B would be in place on the chance of take of a waterbird occurring after the decrease in the take amount, as a precautionary measure.

## **ISSUES & CONCERNS**

### **1. Waterbird mitigation issues: unable to produce Ae'o, and 'Alae Ke'oke'o**

Kawailoa Wind continues to face issues regarding the waterbird mitigation at 'Uko'a Wetland; so far, they have only been able to produce Hawaiian gallinules. To date there have been 14 fledglings produced; the mitigation obligation for Hawaiian gallinules is 20 fledglings. There has been no evidence of reproductive activity for Hawaiian coots or Hawaiian stilts. The mitigation obligation for Hawaiian coots and Hawaiian stilts are 20 fledglings and 24 fledglings respectively. Recently, there was foraging activity from Hawaiian stilts recorded at the mitigation site. DOFAW and the US Fish and Wildlife (USFWS) have recommended moving the mitigation site for the Hawaiian coot and the Hawaiian stilt to Kawainui Marsh, however the licensee is reluctant to pursue that avenue; they stated it would be difficult to properly attribute fledglings to Kawailoa Wind as other management activities occur at the site. Another recommendation from the

agencies has been to remove or decrease take of the Hawaiian coot and Hawaiian stilt owing to no take of waterbirds occurring at the project site, thus far.

The licensee remains hesitant in removing or decreasing take of waterbirds and are continuing to look for other mitigation sties for Hawaiian coots; the Hawaiian stilts' foraging activity at 'Uko'a Wetland will continue to be encouraged through vegetation management.

## **2. Rho value change request from agency approved 0.5 value.**

Kawaihoa Wind is requesting a change in the rho value to account for the benefits of the installed bat deterrents. When calculating take estimates, the agencies require that Evidence of Absence (EoA) model, which was developed by statisticians at USGS (Dalthrop et al. 2017) be used. Per the *Draft Hawaiian Hoary Bat Guidance Document* (2021), the model considers both observed and unobserved takes. An important component of EoA is the rho value, which describes the relative mortality rate. In typical operating conditions, a rho value of 1 is used, which accounts for mortality rates remaining stable from year to year. A rho value can be decreased if minimization measures are implemented that have decreased fatalities. A rho value significantly impacts the estimated take because of how it is incorporated in EoA. The bat guidance document describes a rho value of 0.7, indicating that minimization measures used decreased bat mortality by 30%. USFWS had approved a decrease in the rho value to 0.533. Kawaihoa Wind is asking to decrease the rho value to 0.117, a number determined by a third-party contractor.

The licensee described methods for estimating a conservative rho value in the FY 2020, 2021, and 2022 annual reports. Per the Bat Guidance Document: "If an additional minimization such as raising the cut-in speed or deterrents are implemented, the recommendation is that the rho-value is kept at 1 until tests on assumed weights indicate that there may be a difference in fatality rates. This may require several years of deploying the minimization action before the test on the rho-value can support any difference. If the tests confirm a change in the fatality rates between periods beyond a reasonable doubt, a rho-value can be put in place retroactively for the periods in which the minimization action was deployed if approved by the agencies. The tests can be rerun to determine if the rho-value continues to be reasonable. Note, however, that the actual rho-value is not calculated by the model and may never be known. The best that can be done is to maintain testing of the rho-value being used to see if it is reasonable." Kawaihoa Wind feels that there has been enough time to show the benefits of bat deterrents to support this lower rho value.

With this lower value, Kawaihoa's projected estimated take for 'Ōpe'ape'a will not exceed their current tier for the remainder of the permit term. At this point, the agencies are coordinating jointly to evaluate Kawaihoa's requested rho change. .

## **AGENCY RECOMMENDATIONS**

After the internal review process of the final draft of Kawaiiloa Wind's annual report, DOFAW considers Kawaiiloa to have followed the terms of the HCP and ITL. During a site visit to Kawaiiloa in 2023, Kawaiiloa Wind stated they are currently looking at potential mitigation sites for tier 5 for bat mitigation at lower elevations.

DOFAW would encourage ESRC discussion and input on the continued waterbird mitigation issue. DOFAW will be conferring with USFWS to get a better understanding of the impacts a lower rho value will have on the estimated take for Ōpeʻapeʻa and will be bringing this topic to the ESRC for a future meeting for further discussion and input.

If you have any questions, please contact Kathrine Cullison, Programmatic Habitat Conservation Plan Coordinator, via email at [kathrine.cullison@hawaii.gov](mailto:kathrine.cullison@hawaii.gov).

Respectfully submitted,



DAVID G. SMITH  
Administrator