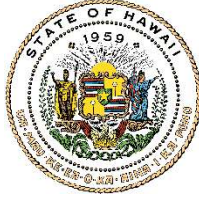


JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA



STATE OF HAWAII | KA MOKU'ĀINA 'O HAWAII'
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA

P.O. BOX 621
HONOLULU, HAWAII 96809

December 13, 2024

The Honorable Ronald D. Kouchi,
President
and Members of the Senate
Thirty-Third State Legislature
State Capitol, Room 409
Honolulu, Hawaii 96813

The Honorable Nadine K. Nakamura
Speaker
and Members of the House of Representatives
Thirty-Third State Legislature
State Capitol, Room 431
Honolulu, Hawaii 96813

DAWN N.S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
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AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
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CONSERVATION AND RESOURCES
ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

Dear President Kouchi, Speaker Nakamura, and Members of the Legislature:

For your information and consideration, I am transmitting a copy of the Status of the Issuance of Incidental Take Licenses for Endangered, Threatened, Proposed, and Candidate Species and The Condition of the Endangered Species Trust Fund for the period July 1, 2023-June 30, 2024 and Safe Harbor Agreements Summary report as required by Section 195D-26, Hawaii Revised Statutes (HRS) and Act 37, Session Laws of Hawaii 2016. In accordance with Section 93-16, HRS, a copy of this report has been transmitted to the Legislative Reference Bureau and the report may be viewed electronically at <https://files.hawaii.gov/dlnr/reports-to-the-legislature/2025/FW25-Endangered-Species-Rpt-FY24.pdf>

Sincerely,

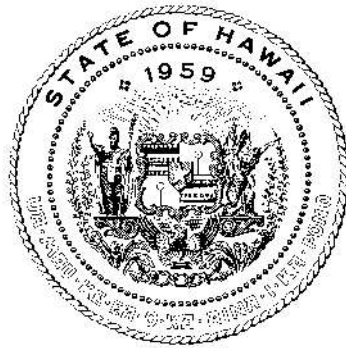
A handwritten signature in black ink, appearing to be "Dawn N.S. Chang".

DAWN N.S. CHANG
Chairperson

Enclosure

**REPORT TO THE THIRTY-THIRD LEGISLATURE
STATE OF HAWAII
2024 REGULAR SESSION**

**STATUS OF THE ISSUANCE OF INCIDENTAL TAKE
LICENSES FOR ENDANGERED, THREATENED, PROPOSED,
AND CANDIDATE SPECIES
AND
THE CONDITION OF THE ENDANGERED SPECIES TRUST FUND
FOR THE PERIOD JULY 1, 2023 – JUNE 30, 2024
AND
SAFE HARBOR AGREEMENTS SUMMARY**



Prepared by

THE STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE

In response to Section 195D-26, Hawaii Revised Statutes
and
Act 37, Session Laws Hawaii 2016

Honolulu, Hawaii
December 2024

**STATUS OF THE ISSUANCE OF
INCIDENTAL TAKE LICENSES FOR ENDANGERED, THREATENED,
PROPOSED, AND CANDIDATE SPECIES
AND
THE CONDITION OF THE ENDANGERED SPECIES TRUST FUND
FOR THE PERIOD JULY 1, 2023 – JUNE 30, 2024
AND
SAFE HARBOR AGREEMENTS SUMMARY**

PURPOSE

Act 380, Session Laws of Hawai‘i (SLH) 1997, amended the State Endangered Species Law, Chapter 195D, Hawai‘i Revised Statutes (HRS), to provide for the preparation and implementation of Habitat Conservation Plans (HCPs) and Safe Harbor Agreements (SHAs) and to provide additional incentives for private landowners to recover and protect threatened and endangered species on their lands. Specifically, Section 195D-26, HRS, requires that an annual report be prepared by the Department of Land and Natural Resources (DLNR) on:

- The effectiveness of HCPs and SHAs issued under Chapter 195D, HRS, and the status of all species for which incidental take licenses have been issued;
- A description of the condition of the Endangered Species Trust Fund (ESTF) established under Section 195D-31, HRS; and
- Recommendations to further the purposes of Chapter 195D, HRS.

Incidental Take Licenses (ITLs) are issued in conjunction with an approved HCP or SHA for the legal take¹ of threatened or endangered species if such take is incidental to an otherwise lawful activity. Habitat Conservation Plans and Safe Harbor Agreements are essential management tools in the State of Hawai‘i and accomplish the following:

- Resolve conflicts between endangered species protection and legitimate use of natural resources;
- Contribute to endangered species recovery efforts through partnerships and proactive planning; and
- Provide essential ecological information for Hawai‘i’s resource managers by requiring a strong monitoring component in all HCPs.

This annual report is submitted to fulfill the Fiscal Year (FY) 2024 reporting requirement and provides detailed information for nine HCPs and four SHAs for which ITLs have been issued. The report is organized by HCP project type, provides an overview of SHAs, describes the condition of the ESTF, and concludes with recommendations to further the purposes of Chapter 195D, HRS.

¹ “Take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect endangered or threatened species of aquatic life or wildlife, or to cut, collect, uproot, destroy, injure, or possess endangered or threatened species of aquatic life or land plants, or to attempt to engage in any such conduct (§195D-2, HRS).

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SUMMARY OF INCIDENTAL TAKE STATUS FOR ENDANGERED WILDLIFE SPECIES COVERED BY HABITAT CONSERVATION PLANS

General locations for the permitted HCPs and SHAs are shown in Figure 1.

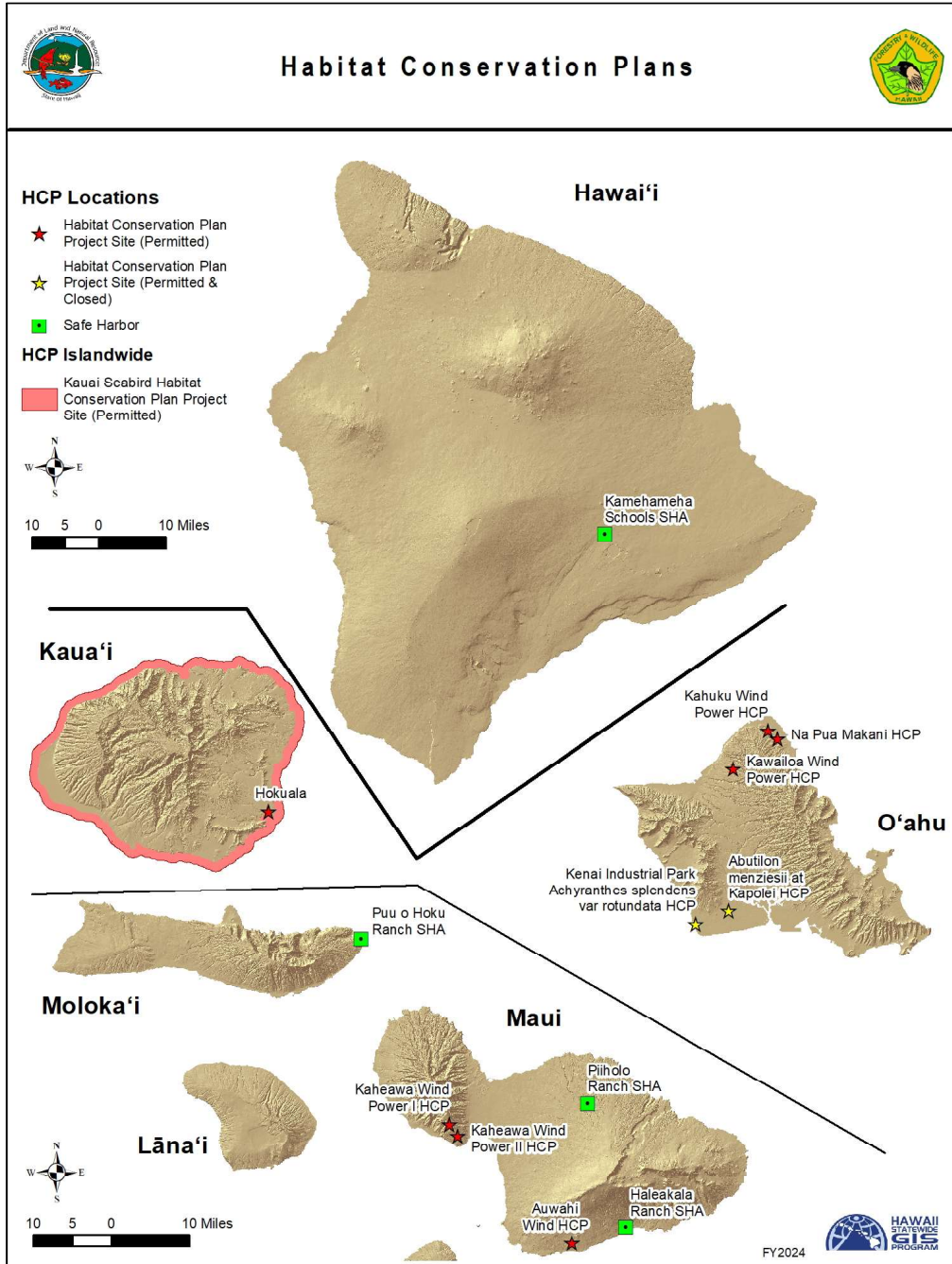


Figure 1. Habitat Conservation Plan Locations

A summary of permit status combining take of all Covered Species of wildlife since ITLs were issued is depicted in Figure 2a. The incidental take shown combines observed, modeled, and indirect take to estimate a total take as of the end of FY 2024. This summary shows that for all Covered Species, the total estimated take is substantially below the total permitted take level. The permitted take of all covered plant species since ITLs were issued includes three Round-leaved Chaff Flower (*Achyranthes splendens var. rotundata*) individuals and their associated seed bank as part of the Kenai Industrial Park Project. The take occurred during a limited previous timeframe. There was no FY 2024 take of plant species from the one active State ITL. This ITL covered listed plant species for the Kenai Industrial Park Project Habitat Conservation Plan.

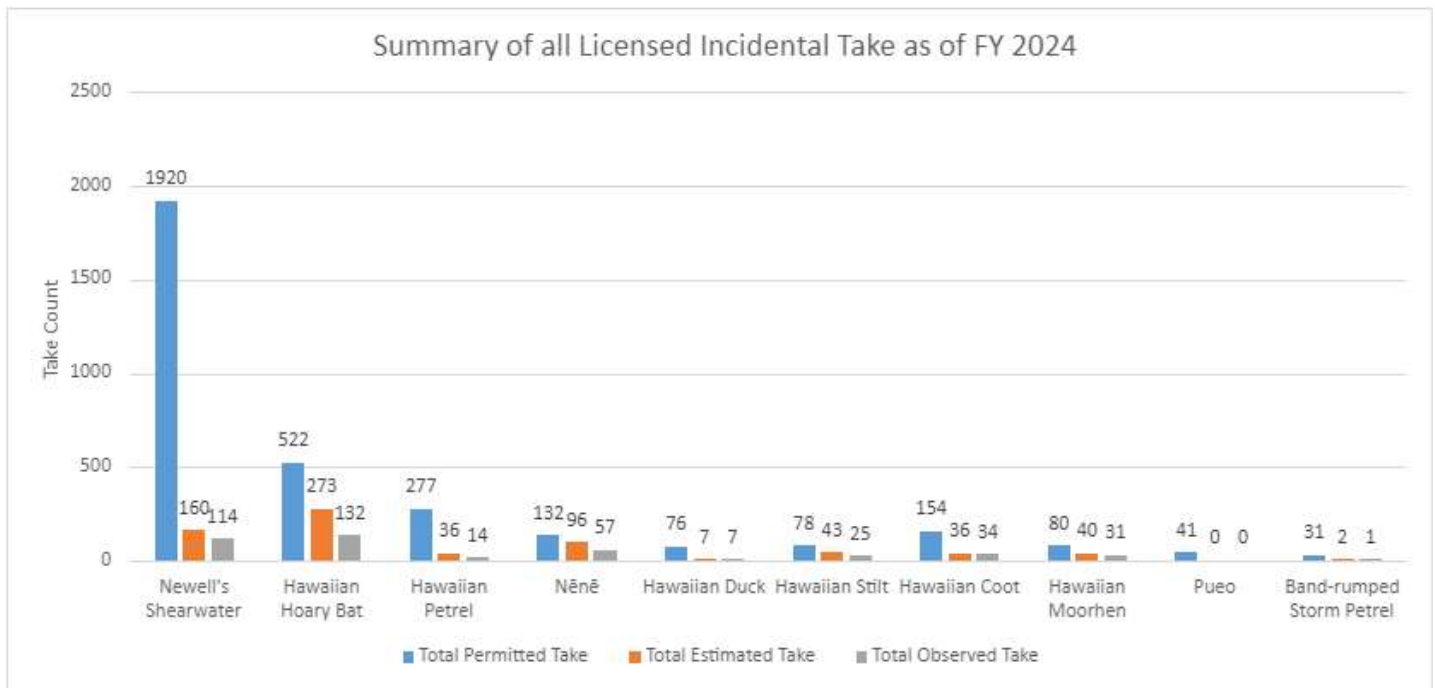


Figure 2a. Total permitted take, observed take, and estimated take (includes indirect take and, for wind energy sites, modeled unobserved take at the 80% upper confidence level) of HCP-covered wildlife species for all approved HCPs as of June 30, 2024. (Note: Includes take from Kaua'i Seabird HCP, which licensed a total take of 1,846 Newell Shearwaters across 8 different licensees).

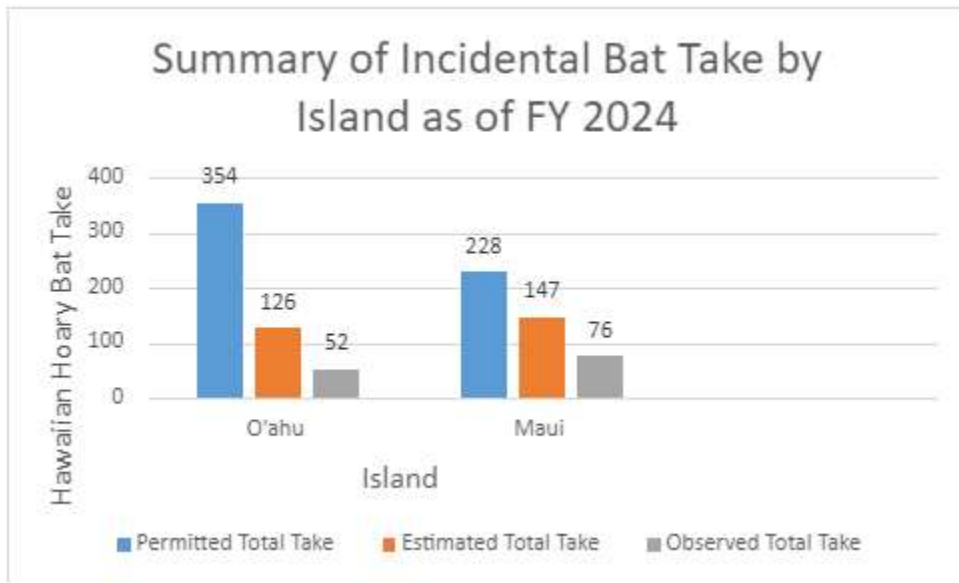


Figure 2b. Total permitted take, observed take (includes systematic observations only), and estimated take (includes indirect take and, for wind energy sites, modeled unobserved take at the 80% upper confidence level) for the Hawaiian Hoary Bat for approved HCPs on O‘ahu and Maui as of June 30, 2024.

**SUMMARY OF HABITAT CONSERVATION PLANS AND ASSOCIATED
INCIDENTAL TAKE LICENSES BY PROJECT TYPE**

Wind Energy Facilities and Structures

Kaheawa Pastures Wind Energy Generation Facility (KWP I) Habitat Conservation Plan, Maui, Hawai‘i. Approved 2006.

ITL Licensee: Kaheawa Wind Power, LLC (ITL-08)
(Terraform Power is the current owner and operator of KWP, LLC)

Project: Twenty wind turbine generators (WTGs) with a total 30-megawatt (MW) energy-generating capacity

ITL Duration: January 30, 2006 – January 30, 2026 (as of end of FY 2024, 18.5 years (92.5.5%) through the permit term)



Kaheawa Wind Power project in West Maui above Ma‘alaea.

Take Authorization Over 20-year Term:

Table 1. Take Authorization of Covered Species for KWP I.

Common Name	Scientific Name	Baseline Limit (Tier 1) ¹	Higher Limit (Tier 2) ¹
‘Ua‘u or Hawaiian Petrel	<i>Pterodroma sandwichensis</i>	25	38
‘A‘o or Newell’s Shearwater	<i>Puffinus auricularis newelli</i>	4	8
Nēnē or Hawaiian Goose	<i>Branta sandvicensis</i>	60	n/a
‘Ōpe‘ape‘a or Hawaiian Hoary Bat	<i>Lasiurus cinereus semotus</i>	20	50 ²

¹ Take authorization is delineated by Baseline and Higher Limits (Tiers). Upon reaching Higher Limits additional mitigation measures or funding are triggered to ensure that mitigation keeps pace with take.

²This higher limit for the Hawaiian Hoary Bat was approved by minor amendment in 2016.

Status of ITL: There was take of three Nēnē in FY 2024 (Table 2). No take was reported for other HCP-covered species at the facility. KWP I submitted to agencies a letter of intent to amend and renew the existing HCP in May of 2024.

Table 2. Documented fatalities of HCP covered species during the reporting period.

Common Name	FY2024 Fatalities
Nēnē	3

Table 3. Total observed fatalities and estimated total take since ITL issuance under the KWP I ITL as of June 30, 2024.

Common Name	Total Observed Take ¹	Estimated Unobserved Take ²	Indirect Take using HCP multipliers	Total Estimated Take
Hawaiian Petrel	8	10	5	23
Nēnē	37	16	2	55
Hawaiian Hoary Bat	13	15	4	32

¹ Excludes 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).

² 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.

Three nēnē fatalities were detected in FY2024 (Table 2). No other fatalities of Covered Species were detected on the property in FY2024. Table 3 estimates the overall total adjusted take that has occurred since KWP I ITL issuance. The take rate through FY 2024 for all covered species would keep the project under the permitted take.

In addition to the total estimated take, accrued lost productivity from the mortality of individuals due to the lag in mitigation are also evaluated and mitigated for but are not counted against permitted take levels. Accrued lost productivity calculations for the Nēnē are estimated at 9.84 juvenile or 5.04 adult equivalents. Accrued lost productivity calculations for Hawaiian Petrel are unavailable at the time of this report. Although not listed as endangered on Maui, it is noteworthy that 16 fatalities of the Hawaiian Short-eared Owl of Pueo (*Asio flammeus sandwichensis*) have been reported in the KWP I project vicinity since the ITL was issued, all before FY 2020. Reports indicate that most of the fatalities are due to project operations.

Monitoring, Avoidance, and Minimization Methods Used at the Project Site

The licensee implemented a year-round fatality monitoring program to document downed wildlife, including the Covered Species, beginning in 2006. In 2006, search plots were 180 m by 200 m rectangles centered on the project's wind turbine generators (WTG). In 2010, search plots were reduced to 73 m radius circular plots centered on each WTG. Beginning in April 2015, the downed wildlife search area was reduced and now consists of graded access roads and 70 m WTG pads. Vegetation is removed from the search plots using various methods, including hand management tools, herbicides, and power tools, depending on the time of year, to avoid nēnē nesting. The licensee conducts predator control biweekly and quarterly (intensive control) at the project site. Beginning in October 2015, canine-assisted searching was implemented, with visual searching as a secondary method if conditions were not favorable for the use of dogs. In FY 2024, all searches were performed by a canine-assisted team. In FY2024, all 20 WTGs were searched for fatalities once per week. Searchers conduct carcass persistence and searcher efficiency trials using surrogates for the Covered Species.

KWP I tracks observations of live nēnē on-site when they overlap with the timing of fatality searches. A total of 23 observations of 62 (non-distinct) individual nēnē were made over 18 days between September 2023 and April 2024, with observations made every month of this timeframe. The Project has previously implemented a variety of actions to minimize risk to the nēnē, which continued in FY 2024. Scavenger trapping efforts implemented at the Project to improve the persistence of carcasses during fatality monitoring have contributed to reducing the risk of predation of the nēnē, and safety measures to avoid interactions between nēnē and canine search teams have been identified and are implemented as needed. In response to the current projections of the potential take of the nēnē at the Project, KWP I have taken practicable actions to minimize the threats to the nēnē. In FY 2023, KWP I implemented a vegetation management plan developed with concurrence from the agencies, reducing the amount of woody vegetation on site. The goal was to minimize the attractiveness of onsite habitat to the nēnē. Because nēnē has a continued breeding presence at the site, KWP I will continue to reduce the amount of woody vegetation on-site in FY 2025 in conjunction with agency approval. KWP I will continue to monitor nēnē activity on site to inform vegetation management success and continue to work with USFWS, the Division of Forestry and Wildlife (Division), and technical experts to reduce risk to the species further.

Per the HCP, the Project began implementing Low Wind Speed Curtailment (LWSC) at all WTGs up to wind speeds of 5 meters per second (m/s) on July 29, 2014. LWSC is expected to reduce the risk of bat take. LWSC was increased to 5.5 m/s on August 4, 2014, in response to bat take occurring at the Project and KWP II on March 13, 2013, and February 26, 2014. Curtailment at 5.5 m/s is in effect from sunset to sunrise annually, from February 15 through December 15. The Project continues site-wide bat activity assessment via acoustic monitoring after the initial HCP-required 12-month monitoring period. An object of bat acoustic monitoring is to better understand the annual and seasonal variation in bat activity at the project site. As a voluntary measure (not required in the HCP), acoustic monitoring for bat activity at the Project has been conducted continuously since August 2008. In October 2013 (FY 2014), nine Song Meter SM2BAT+ ultrasonic recorders (SM2) were deployed, replacing the previously used Anabat SD2 bat detectors (Titley Electronics, Brendale, QLD, Australia). Each SM2 was equipped with one SMX-U1 ultrasonic microphone (Wildlife Acoustics, Maynard, MA, USA) positioned horizontally, facing southwest (away from the prevailing northeast trade winds), 6.5 meters above ground level. In October 2019 (FY 2020), the Pali brush fires burned across most of the Project, destroying four SM2 units. To continue with the objectives of the monitoring program and address gaps in the spatial coverage of SM2s introduced by the brush fire, the monitoring regime was redesigned in July 2020 with the deployment of five SM2 units (WTGs 1, 5, 13, 15, and 20). This type of unit has been continuously used since October 2013. Additionally, because of differences in the equipment used before FY 2014, data collected in FY 2024 is only comparable to data collected between FY 2014 and FY 2023. In FY 2024, detection rates fluctuated seasonally, like the seasonal trends observed in previous monitoring years. Detections increased during times when bats are known to lactate and during post-lactation periods between August and October. Detections decreased during times when bats were known to continue post-lactation and pre-pregnancy. For the FY 2024 monitoring period (July 2023 to June 2024), Hawaiian hoary bats were detected on 92 nights out of 1,715 detector nights sampled (5.4 percent).

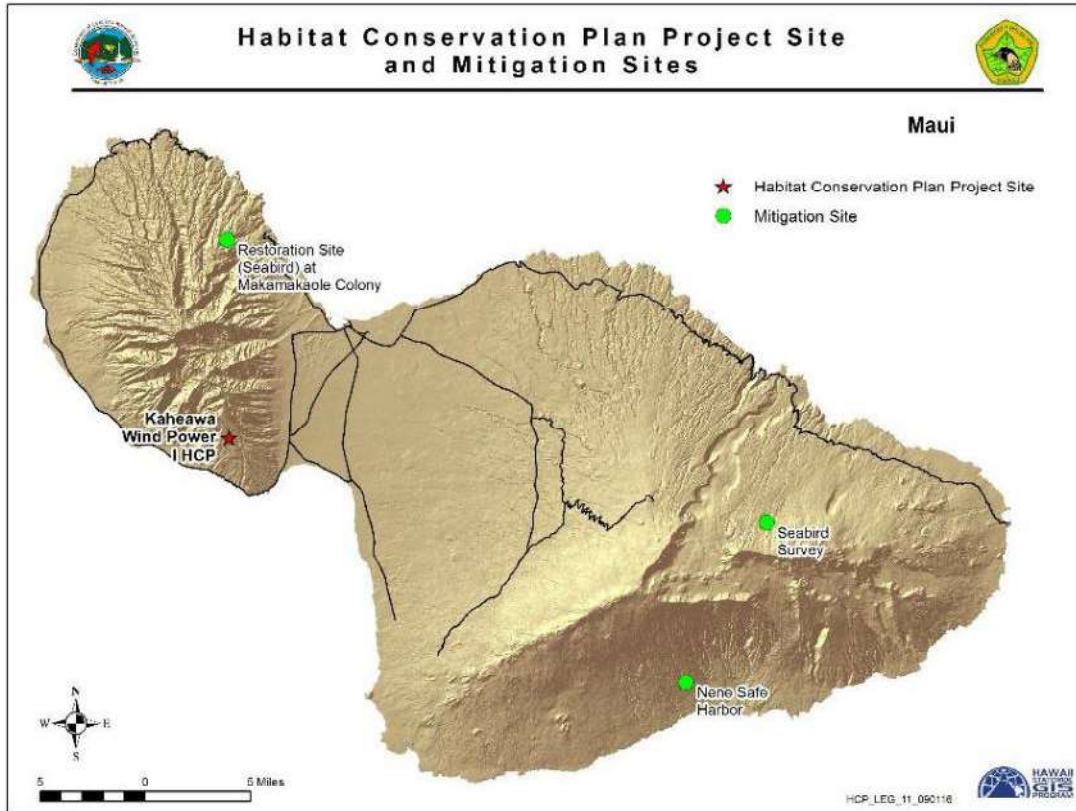


Figure 3. Location of Kaheawa Wind Power I HCP and Mitigation Sites

Mitigation Status:

Hawaiian Petrel & Newell’s Shearwater. Mitigation for the two covered seabird species (Hawaiian Petrel and Newell’s Shearwater) is being implemented concurrently with Kaheawa Wind Power II. Mitigation entails management of two four-acre predator-free fenced enclosures (one for each species, constructed in 2013), provisioned with artificial burrows and social attraction, both used to encourage nesting of these species, at the Makamaka’ole site in West Maui. Three species of seabirds, Hawaiian Petrel, Newell’s Shearwater, and Bulwer’s Petrel (*Bulweria bulwerii*) have frequented burrows within both enclosures between the months of March and October since June 22, 2015. Only Newell’s Shearwater nesting activity has been observed at the site. On December 5, 2022, DOFAW determined that after the 2022 breeding season at Makamaka’ole, the licensee obtained a mitigation credit of 8.53 Newell’s shearwater, the higher tier limit in ITL-08.

In January of 2023, Terraform (formerly Brookfield) emailed DOFAW, saying they were stopping management at Makamaka’ole and were leaving the site. In March of 2023, DOFAW conducted a site visit at Makamaka’ole and discovered the predator-proof fence at the mitigation site that Terraform managed was in disrepair in several sections and not functional. DOFAW notified Terraform in April of 2023 and, over the course of FY 2024, initiated communication and requests for funds to repair the damaged fence. In April and May 2024, DOFAW staff documented two Newell’s shearwaters killed by mongooses entering the failing predator-proof

fence. With no progress on this issue for over nine months, DOFAW HCP consulted a DLNR Deputy Attorney General (DAG) to seek remediation for the derelict predator-proof fence. The DAG met with Terraform's attorney several times in the Spring of 2024, and a formal memorandum of agreement with Terraform regarding funding fence repairs at the site and continuing monitoring and management at the site per the HCP is being developed. DOFAW has not yet accepted the transfer of Makamaka'ole to the state, and this subject is pending an open legal consultation. DOFAW has paused issuing any further seabird credit letters to the licensee.

No Hawaiian petrel nesting activity has been detected at burrows within the enclosures since 2017, so the licensee provided funding to Pūlama Lāna'i to supplement Hawaiian petrel breeding colony protection efforts on Lāna'i in 2018. On March 27, 2023, USFWS provided a letter assessing that the total mitigation benefit achieved across mitigation projects is 89.72 adult 'ua'u for both KWP's. KWP I's Tier 2 'ua'u mitigation obligation in the federal Incidental Take Permit (ITP) is 38 'ua'u (including adults, subadults, fledglings, nestlings, and eggs). In the March 27 letter, USFWS acknowledged that KWP I met its 'ua'u mitigation obligation.

Nēnē. In 2009, the Project provided \$264,000 to DOFAW to fund the construction and management of the Haleakalā Ranch nēnē release pen as part of Project nēnē mitigation. DOFAW constructed the release pen three years later. DOFAW has used the funding to perform fence maintenance, predator control, vegetation management, and monitoring at the Haleakalā Ranch pen. Nēnē have been translocated from Kaua'i to the Haleakalā Ranch pen since 2011, and several benefits have accrued based on the effects of these actions, including the production of fledglings and increased adult survival rates.

In FY 2024 KWP I worked closely with DOFAW and USFWS to develop proposals to allocate previously unspent funds and to provide additional funding for historic shortages. As of July 2024, KWP I has reached a preliminary agreement with DOFAW and USFWS on credit allocation from FY 2012 through FY 2023 for the fledglings and increased adult survival at the Haleakalā Ranch release pen. KWP I acknowledges the Project is still lagging in mitigation credits, with 29 credits achieved out of the 60 plus delayed reproductivity necessary mitigation credits and is working with DOFAW and USFWS to manage the nēnē mitigation program adaptively. Cumulatively, the increases in adult and juvenile survival and productivity achieved by KWP I's mitigation project have not been sufficient to fully offset the mitigation obligations of Tier 1. KWP I is currently working on pen habitat and infrastructure improvements at the Haleakalā Ranch release pen for the FY 2025 breeding season to increase productivity, and is working on other proposals for nēnē mitigation. Additionally, KWP I is coordinating with DOFAW and Haleakalā Ranch to plan an expansion of the existing pen.

Hawaiian Hoary Bat. Baseline mitigation for 20 bats was funded in 2006 and is complete. A mitigation project accounting for the taking of an additional 15 bats was completed in FY 2020 for a total contract cost of \$750,000. This mitigation project consisted of Hawaiian Hoary Bat ecological research in East Maui, contracted to H.T. Harvey Ecological Consultants. It evaluated the species' habitat preferences, prey availability, foraging ranges, core use areas, and diet over 34,226 hectares on Haleakalā. Bat detectors were installed at 45 sites in nine habitat types for 315 deployments. To radio tag bats, mist netting occurred from June 2017 through September 2018 in three general areas: Haleakalā National Park, Olinda Road, and Lower Kula. H.T. Harvey researchers radio-tracked 16 bats on 109 nights during the mist netting period and sampled insects in the nine habitat types for seven sampling periods from August 2017 through

August 2018. From the acoustic data, bats spent more time foraging in gulch, low-density developed, and grassland habitats, although differences existed between months.

The study showed bats were much less likely to call on nights with rainfall. The mean core use area used by the bats for foraging was 3,700 hectares, but there was a wide range of values among individual bats. Most guano samples were collected from adult males, adult females, and subadult females and showed bats ate primarily moths (68%), as well as flies (12%), termites (9%), crickets and katydids (5%), beetles (4%), and true bugs (2%). Insects eaten were both native and non-native, and the dietary data suggested the bats were somewhat selective in their prey choices compared to the abundance of insect species available in the insect samples. Finally, the results demonstrated that the Hawaiian Hoary Bats on Maui could forage in different habitats during different seasons.

Mitigation funding for the remaining 15 bats in Tier 2 was provided to the U.S. Geological Survey Hawaiian Hoary Bat Research Group starting in FY 2018 to conduct bat ecological research on Hawai'i Island to better inform future bat conservation. The funding obligation was completed in FY 2022, with research published in 2023 (available online at <https://peerj.com/articles/14365/>). Combined with KWP II, the Project had a total funding obligation of \$1.7M to allocate to portions of each Project's mitigation requirement. KWP I, in combination with KWP II exceeded this funding obligation by \$131,500 over the original cost, for a total combined expenditure of \$1,831,500.

Kaheawa Wind Power II Wind Energy Generation Facility (KWP II) Habitat Conservation Plan, Maui, Hawai‘i. Approved 2012.

ITL Licensee (ITL-15): Kaheawa Wind Power II, LLC
(Terraform Power owns and operates KWP II, LLC)

Project: Fourteen WTGs with a total 21-MW energy generating capacity. Project is adjacent and downslope of KWP I

ITL Duration: January 5, 2012 – January 30, 2032 (as of end of FY 2023, 12.5 years (62.5 %) through the permit term)



Kaheawa Wind Power II project in West Maui above Ma‘alaea.

Take Authorization Over 20-year Term:

Table 4. Take Authorization for KWP II.

Common Name	Scientific Name	Level of Take ¹	5-year Limit	20-year Limit
‘Ua‘u or Hawaiian Petrel	<i>Pterodroma sandwichensis</i>	Tier 1	8 adults/ juveniles & 4 chicks/eggs	19 adults/ juveniles & 9 chicks/eggs
		Tier 2	16 adults/ juveniles & 8 chicks/eggs	29 adults/ juveniles & 14 chicks/eggs
‘A‘o or Newell’s Shearwater	<i>Puffinus auricularis newelli</i>	Tier 1	2 adults/ juveniles & 2 chicks/eggs	2 adults/ juveniles & 2 chicks/eggs
		Tier 2	5 adults/ juveniles & 3 chicks/eggs	5 adults/ juveniles & 3 chicks/eggs
Nēnē or Hawaiian Goose	<i>Branta sandvicensis</i>	Tier 1	8 adults/ juveniles & 1 fledgling	18 adults/ juveniles & 3 fledglings
		Tier 2	12 adults/ juveniles & 3 fledgling	27 adults/ juveniles & 3 fledgling
		Tier 3 ³	Not applicable	44 adults
‘Ōpe‘ape‘a or Hawaiian Hoary Bat ²	<i>Lasiurus cinereus semotus</i>	Tier 1	7 individuals	7 bats
		Tier 2	11 individuals	11 bats
		Tier 3 ³	Not applicable	30 bats
		Tier 4 ³	Not applicable	38 bats

¹ Take authorization is delineated by Tiers. Upon reaching higher Tiers additional mitigation measures or funding are triggered to ensure that mitigation keeps pace with take.

² Minor amendment to clarify permitted bat take processed on November 26, 2014.

³ New tier approved in a major amendment on November 8, 2019.

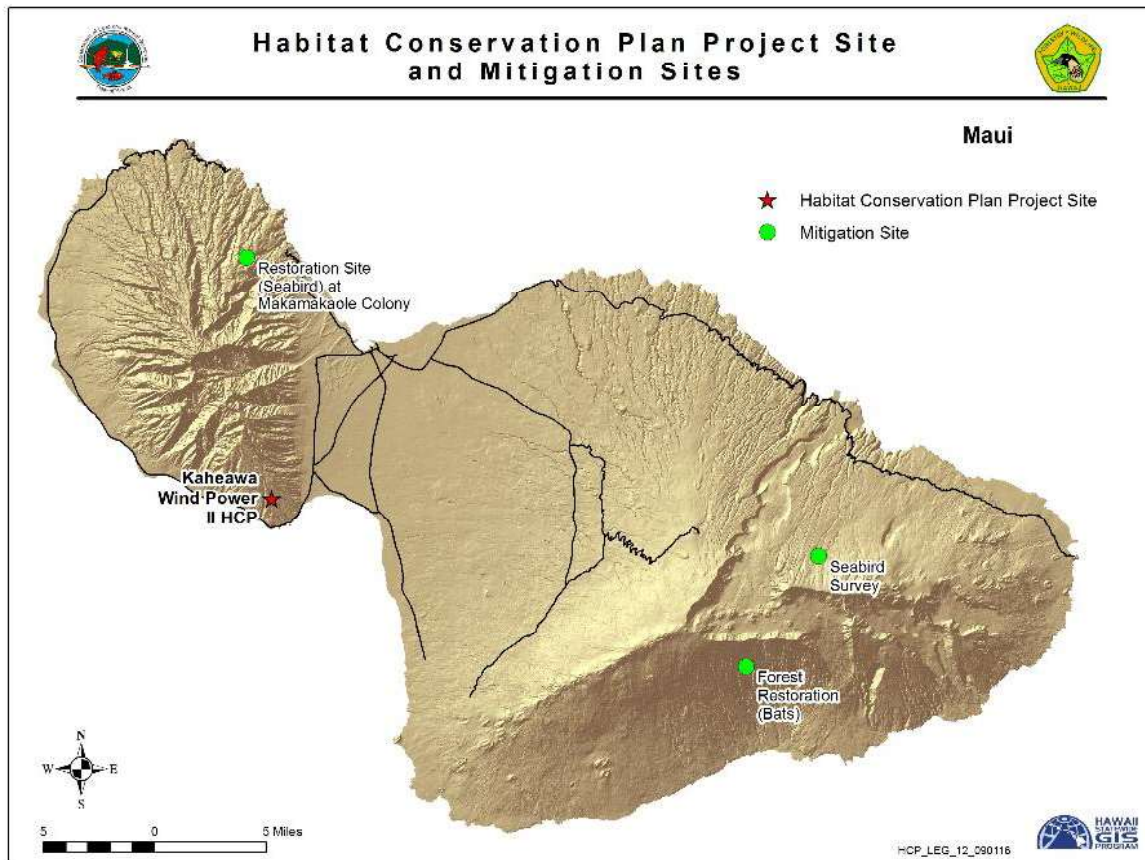


Figure 4. Location of Kaheawa Wind Power II HCP and Mitigation Sites

Status of ITL: One fatality of a Covered Species was found at KWP II during FY 2024, a nēnē. The nēnē was found during a standard search in February 2024, and the cause of death was undetermined and is pending a necropsy. No other covered species fatalities were found in FY 2024.

The incidental take authorized includes both observed and unobserved take, including indirect take that occurs when an adult individual is taken during its respective breeding season. Table 5 estimates the overall total adjusted take that has occurred since KWP II ITL issuance. In addition to the total estimated take, accrued lost productivity from the mortality of individuals due to the lag in mitigation are also evaluated and mitigated for but are not counted against permitted take levels. Accrued lost productivity calculation for the nēnē is estimated at 8.84 adult equivalents.

Beginning in July 2015, the search plot areas were reduced relative to the size of plots searched before July 2015. The reduced search area includes only roads and graded WTG pads found within a 70-meter circle of radius centered on each WTG. Canine-assisted searching accounted for 100% of the downed wildlife monitoring searches in FY 2024, once per week for the entire year.

Additionally, KWP II tracks observations of live nēnē on-site when they overlap with the timing of fatality searches. 27 observations of 71 (non-distinct) individual nēnē were made over 22 days between September and April 2023, with observations made every month of this timeframe. The

Project has previously implemented a variety of actions to minimize risk to the nēnē, which continued in FY 2024. Scavenger trapping efforts implemented at the Project to improve the persistence of carcasses during fatality monitoring have likely reduced the risk of predation of the resident nēnē and safety measures to avoid interactions between nēnē and canine search teams have been identified and are implemented as needed. In response to the current projections of potential take of the nēnē at the Project, KWP II has taken practicable actions to minimize the threats to the nēnē. In FY 2023, KWP II implemented a vegetation management plan developed with concurrence from the agencies, reducing the amount of woody vegetation on site. The goal was to minimize the attractiveness of onsite habitat to the nēnē. Because nēnē have a continued breeding presence at the site, KWP II will continue to reduce the amount of woody vegetation on-site in FY 2025 in conjunction with agency approval. Additionally, KWP II will continue to monitor nēnē activity on site to inform vegetation management successes and needs and continue to work with USFWS, DOFAW, and technical experts to further reduce risk to the species.

In October 2019, wildfires destroyed bat monitoring equipment at the wind turbines. For the remainder of FY 2020 (October 2019 to June 2020), only two sites (WTGs 9 and 11) were monitored for acoustic bat activity. To continue with the objectives of the monitoring program and address gaps in the spatial coverage of SM2 units resulting from the brush fire, the monitoring regime was redesigned in July 2020 with the deployment of five SM2 units (WTGs 2, 5, 9, 11, and 14) Additionally, because of differences in the equipment used before FY 2014, data collected in FY 2024 is only comparable to data collected between FY 2014 and FY 2023. In FY 2024, Hawaiian hoary bats were detected on 161 out of 1,781 detector nights sampled (9 percent). Following the HCP, low wind speed curtailment (LWSC) was implemented from the start of Project operations at wind speeds of up to 5 meters per second at all WTGs for April through November. This curtailment period was extended to begin mid-February and continue through December 15 in response to bat fatalities documented at the Project on March 13, 2013, and February 26, 2014, and a fatality at the KWP I Project on December 14, 2013. On June 6, 2014, the Project proposed an additional adaptive management measure to the USFWS and DOFAW, increasing the LWSC cut-in speed. On July 29, 2014, the LWSC was raised to 5.5 m/s between February 15 and December 15 from sunset to sunrise. The Project continues its site-wide bat activity assessment as committed to in the approved HCP Amendment.

Table 5. Total observed fatalities and estimated total take since ITL issuance are covered under the KWP II ITL as of June 30, 2024.

Common Name	Total Observed Take ¹	Estimated Unobserved Take ²	Indirect Take using HCP multipliers	Total Estimated Take
Nēnē	10	18	2	30
Hawaiian Hoary Bat	3	8	1	12

¹ Excludes take 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).

² 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

Mitigation Status:

Hawaiian Petrel and Newell’s Shearwater.

KWP II funded surveys for potential mitigation sites on east Maui, completed in September 2015 (KWP II 2016). These surveys identified potential colony locations, estimated the number of

birds present, assessed predator activity, and evaluated management feasibility at the colony locations.

Mitigation efforts at Makamaka'ole began with constructing the two predator enclosures completed in September 2013. Mitigation efforts at Makamaka'ole involved predator monitoring and trapping, artificial burrow checks and monitoring using game cameras, seabird social attraction using decoys and sound systems, and ongoing maintenance, including vegetation management, of both enclosures through January 31, 2023.

On December 5, 2022, DOFAW provided a letter assessing that after the 2022 breeding season at Makamaka'ole, credit for 148 adults and two fledglings translated into 8.53 'a'o mitigation credits for KWP II (in conjunction with KWP I), and that KWP II had completed its mitigation obligation for the 'a'o. In January of 2023, Terraform (formerly Brookfield) emailed DOFAW, saying they were stopping management at Makamaka'ole and were leaving the site. In March of 2023, DOFAW conducted a site visit at Makamaka'ole and discovered the predator-proof fence at the mitigation site that Terraform managed was in disrepair in several sections and nonfunctional. DOFAW notified Terraform in April of 2023, and over the course of FY 2024 initiated communication and requests for funds to repair the damaged fence. In April and May 2024, DOFAW staff documented two Newell's shearwater killed by mongoose entering the failing predator-proof fence. With no progress being made on this issue for over nine months, DOFAW HCP consulted a DLNR DAG on this matter to seek out remediation for the derelict predator-proof fence. The DAG was able to meet with Terraform's attorney several times in the Spring of 2024, and a formal memorandum of agreement with Terraform regarding funding fence repairs at the site and continuing monitoring and management at the site per the HCP is being developed.

Although Makamaka'ole had been managed to benefit the 'ua'u, as well as the 'a'o, no 'ua'u activity has been detected at burrows within the enclosures since 2017. Therefore, both KWP projects worked with USFWS and DOFAW to adaptively manage mitigation efforts for this species to ensure that their mitigation obligations are met. Beginning in the 2018 'ua'u breeding season, both KWP projects worked with USFWS and DOFAW to adaptively manage 'ua'u mitigation efforts in an interim fashion. As a result of this adaptive management, KWP I provided funding to Pūlama Lāna'i to supplement 'ua'u breeding colony protection efforts on Lāna'i in 2018. The success of this program and difficulties in attracting petrels to Makamaka'ole suggested that both KWP projects could benefit the 'ua'u and make progress on mitigation obligations by continuing support for the Lāna'i petrel breeding program. From FY 2021 to FY 2023 (two breeding seasons), the two KWP projects adaptively managed their seabird mitigation programs by providing funding to Pūlama Lāna'i.

On March 27, 2023, USFWS provided a letter assessing that after the 2022 breeding season, the total estimated benefit provided for the 'ua'u from breeding colony protection efforts on Lāna'i was 89.20 credits based on a previously agreed upon assessment framework. Additionally, based on 'ua'u activity at Makamaka'ole in 2016 and 2017, in their March 27th letter, USFWS approved an estimated benefit for the 'ua'u of 0.56. Thus, the total mitigation benefit achieved across mitigation projects is 89.72 adult 'ua'u for both KWPs. KWP I's Tier 2 'ua'u mitigation obligation per the ITP is 38 'ua'u (including adults, subadults, fledglings, nestlings, and eggs). In the March 27 letter, USFWS acknowledged that KWP I had met its 'ua'u mitigation obligation. Since the disrepair of the predator-proof fence that was part of KWP I's HCP mitigation responsibilities was discovered, DOFAW has not yet accepted the transfer of Makamaka'ole to

the state. This subject is pending in an open legal consultation, and DOFAW has paused issuing any further seabird credit letters.

Nēnē. The Project provided funds to DOFAW in FY 2017 to manage Maui-based nēnē release pens with significant activity or nesting. Specifically, the funding supported predator control, fence maintenance, vegetation management, and monitoring of a nēnē release pen at Pi‘iholo Ranch in FY 2017, FY 2018, and part of FY 2019. The Project also provided funding for a technician at the Haleakalā Ranch release pen from October 2018 through February 2019. In May 2020, the Project provided \$112,682 to fund nēnē mitigation activities performed by DOFAW at the Pi‘iholo Ranch release pen. DOFAW could not process these funds in May 2020, when they were received, due to internal limitations. During FY 2024, KWP II worked closely with DOFAW to allocate \$107,316 of the unspent funding to the previously completed mitigation work at Pi‘iholo Ranch in FY 2021 and Haleakalā Ranch in FY 2023. In 2021, the Pi‘iholo Ranch was sold, and the release pen was no longer available for mitigation. Nēnē credit allocation through FY 2024 is 12.57 credits. It is important to note that the cumulative increases in adult and juvenile survival and productivity achieved by KWP II’s mitigation projects have not been sufficient to fully offset the mitigation obligations of Tier 1 or Tier 2. KWP II is currently working on pen habitat and infrastructure improvements at the Haleakalā Ranch release pen for the FY 2025 breeding season in an attempt to increase productivity, in addition to other proposals for nēnē mitigation. Additionally, KWP II is coordinating with DOFAW and Haleakalā Ranch to plan an expansion of the existing pen. KWP II is actively working with agencies to address the nēnē mitigation deficit and Tier 2 mitigation planning.

Hawaiian Hoary Bat. Mitigation for Tier 1 and Tier 2 estimated bat take has been completely funded at Kahikinui State Forest Reserve (KWP II 2018). The habitat management program founded through Project mitigation funding continues under DOFAW management (DOFAW 2021). Mitigation for Tier 3 estimated take (19 bats within Tier 3) was contracted to the U.S. Geological Survey (USGS) Hawaiian Hoary Bat Research Group. Bat ecological research on Hawai‘i Island began in FY 2018 and is intended to better inform future bat habitat restoration and conservation. KWP II’s contract with USGS was completely funded in FY 2021. The funding obligation was completed in FY 2022; the funded research was published in FY 2024 (available online at <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0288280>). The Project in combination with Brookfield’s Kaheawa I Wind Project (KWP I) had a total funding obligation of \$1.7M to allocate to portions of each Project’s mitigation requirement. KWP II, in combination with KWP I, exceeded its funding obligation by \$131,500 over the original cost, for a total combined expenditure of \$1,831,500. Assuming the current take rate and search conditions remain unchanged through the remainder of the permit term, Tier 4 mitigation will not be necessary.

Pueo. Although the Pueo is not a listed species on Maui, KWP II included Pueo in their HCP and provided mitigation compensation of \$25,000 paid to DOFAW in FY 2013 to be directed toward Pueo research efforts on O‘ahu. With these and other funds, DOFAW funded a Pueo research project on O‘ahu in 2017, which was completed in FY 2018 and can be viewed at <https://www.pueoproject.com>.

Auwahi Wind Energy Habitat Conservation Plan, Maui, Hawai'i. Approved 2012.

ITL Licensee: Auwahi Wind Energy, LLC (as of 8/15/2023 American Electric Power Energy Supply (AEP Energy) has sold its interest in Auwahi Wind Energy, LLC. to IRG Acquisition Holdings, LLC)

Project: Eight WTGs with a total 21-MW energy-generating capacity

ITL Duration: February 9, 2012 – February 9, 2037 (as of the end of FY 2024, 12 years (48%) through the permit term)



Auwahi Wind Power, Maui

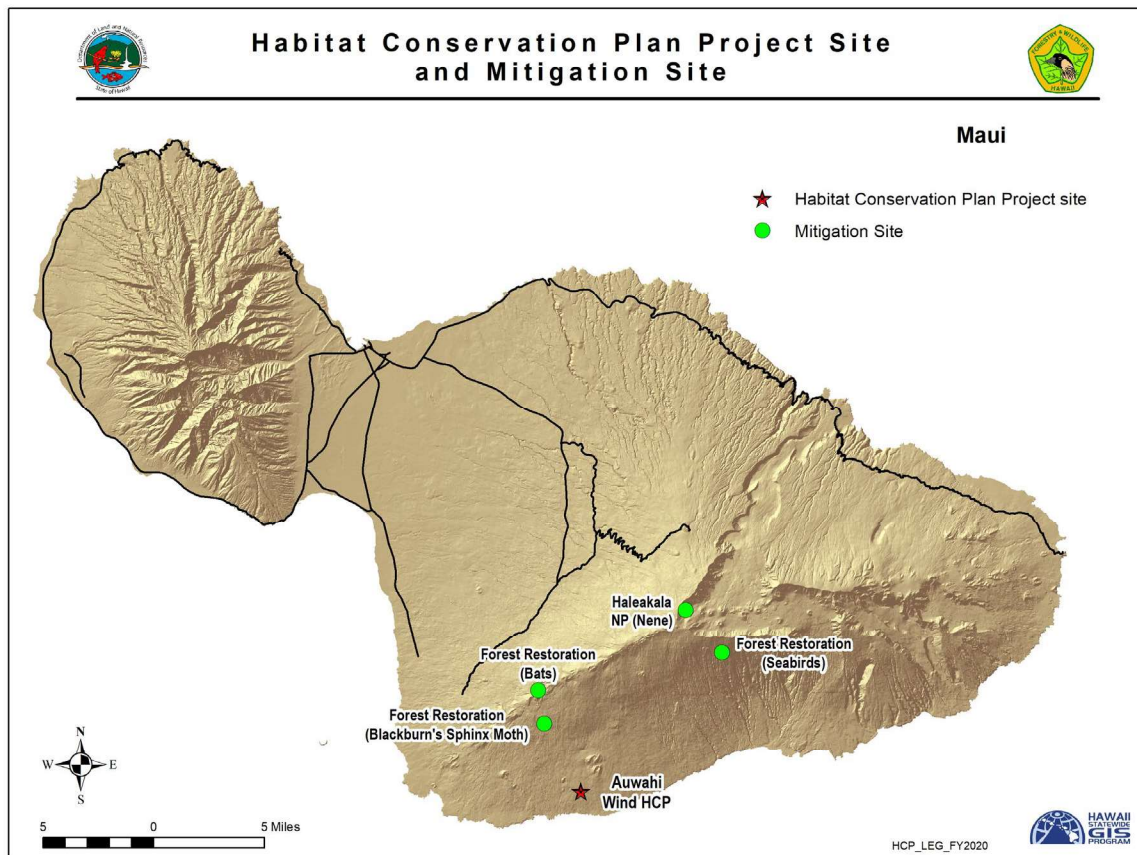


Figure 5. Location of Auwahi HCP and Mitigation Sites

Take Authorization Over 25-year Term:

Table 6. Take Authorization for Auwahi Wind HCP.

Common Name	Scientific Name	Level of Take	25-year Limit
‘Ua‘u or Hawaiian Petrel	<i>Pterodroma sandwichensis</i>	Tier 1	19 adults/ immatures & 7 chicks/eggs
		Tier 2	32 adults/ immatures & 12 chicks/eggs
		Tier 3	64 adults/ immatures & 23 chicks/eggs
Nēnē or Hawaiian Goose	<i>Branta sandvicensis</i>	Length of permit	5 adults/ immatures
‘Ōpe‘ape‘a or Hawaiian Hoary Bat ¹	<i>Lasiurus cinereus semotus</i>	Tier 1	5 bats
		Tier 2	11 bats
		Tier 3	21 bats
		Tier 4 ²	81 bats
		Tier 5 ²	115 bats
		Tier 6 ²	140 bats
Blackburn’s Sphinx Moth	<i>Manduca blackburni</i>	Not applicable	28-acres permanently disturbed habitat is an index of take

¹ Take authorization for bats are converted to adult bats based on HCP and clarified by email from J. Charier of USFWS to Marie VanZandt of Auwahi on March 2, 2015.

² New tier approved in a major amendment on August 23, 2019.

Status of ITL: In FY 2024, eleven Hawaiian hoary bats were taken at the Auwahi Wind Energy facility (Table 7). No other HCP-covered species were taken at the facility.

Table 7. Documented fatalities of HCP-covered species and species of concern at Auwahi during the reporting period.

Common Name	FY2024 Fatalities
Hawaiian Hoary Bat	11

In FY 2024, a canine-assisted search team conducted all weekly fatality monitoring searches along turbine pads and roads within a 100-meter radius of turbines and a 10-meter radius of the meteorological tower. The searches around the meteorological tower were discontinued once the tower was removed in FY 2023.

Table 8 provides an estimate of the overall total adjusted take that has occurred since Auwahi Wind ITL issuance.

The total estimated take of bats exceeded the total permitted take for bats on the original ITL by June 2016, and Auwahi Wind submitted an amended HCP and associated ITL to the agencies for review in FY 2019, which added three tiers of bat take and implemented low wind speed curtailment at 6.9 m/s. The amended HCP was approved in FY 2020, and the adjusted take authorization can be found in Table 7. During FY 2020, the rate of bat take exceeded the projected threshold required to be met to remain within the amended take limit over the remainder of the 25-year permit term. Auwahi Wind implemented its adaptive management plan, installed acoustic deterrents on all eight turbines in June and July 2020, and continued their use through FY 2022. In FY 2021, Auwahi Wind initiated coordination with the DOFAW Forestry Program for the use of portions of the Kamehamehenui Forest Reserve to offset Hawaiian hoary bat take as mitigation in advance of exceeding the Tier 5 level of take.

Table 8. Total observed fatalities since ITL issuance and estimated total adjusted take covered under the Auwahi Wind Energy ITL as of June 30, 2024.

Common Name	Total Observed Take ^{1,3}	Estimated Unobserved Take ²	Indirect Take	Total Estimated Take
Hawaiian Hoary Bat	63	31	9	103
Hawaiian Petrel	1	1	1	4
Band-rumped Storm Petrel	1	ND	ND	ND

¹ Excludes 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).

² 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.

³ Includes observed take of one injured bat rehabilitated in FY 2020.

ND - Not determined.

In FY 2022, Auwahi Wind updated and submitted additional minimization measures as part of their Adaptive Management Plan that included the removal of the meteorological tower, which the agencies approved. The demolition of the tower was completed in February 2023. Auwahi Wind also supplied acoustic detectors for a test of acoustic bat deterrent function at a wind farm in Minnesota after monitoring on Maui showed no difference between deterrent and non-deterrent turbines. Auwahi Wind continued to investigate bat fatality events at the project turbines. Despite the implementation of the bat deterrents, fatalities were still documented at the turbines, with a slight increase in fatality rate from FY 2019 (7.69 bats per year in FY 2024; 6.28 bats per year in FY 2019).

Mitigation Status:

Hawaiian Petrel. Mitigation for take of Hawaiian Petrels in FY 2023 (2022 breeding season) consisted of continued petrel burrow monitoring at Kahikinui Forest Reserve to obtain an estimate of the number of active petrel burrows and reproductive (fledging) success. One new burrow was marked, mapped, and added to the monitoring dataset. In the most recent breeding season, 79 petrel burrows were being monitored, 37 showed signs of activity throughout the breeding season, and 30 burrows were consistently active. Thirty burrows successfully fledged a chick, and the remaining seven either failed or showed signs of occupation by a non-breeding Hawaiian Petrel. There were predator detections at the burrows during the 2023 breeding season. One adult carcass was found showing signs of predation, and one juvenile carcass was found not showing signs of predation.

The predator control strategy continued to assess rat and mongoose activity across the entire management area. One hundred eighteen traps were deployed in FY 2024. Traps were checked and baited every two weeks and were operational year-round. Trapping effort in FY 2024 resulted in removing 32 mice and seven rats; no mongooses or cats were captured.

Nēnē. Auwahi Wind provided a one-time payment of \$25,000 to the Haleakalā National Park on April 17, 2012, to cover mitigation expenses for the Hawaiian Goose.

Hawaiian Hoary Bat. Tier 1 mitigation for the Hawaiian Hoary Bat consists of the restoration of approximately 132 acres of pastureland in the Waihou Mitigation Area (the Pu‘u Makua parcel) to create roosting and foraging habitat for the Hawaiian Hoary Bat. The fence was inspected quarterly in FY 2023 and was repaired after storm damage. The parcel remained ungulate-free at

the close of the fiscal year. Invasive plant species control continued to meet success criteria targets, and supplemental out-planting of native Hawaiian plants continued in FY 2024. Additional native plant species were out-planted in the grasslands and koa (*Acacia koa*) plots. With the Maui Plant Extinction program, Auwahi Wind helped collect plant information within the fenced area, specifically for naio (*Myoporum spp.*).

Year five monitoring of percent vegetative cover along all transects in FY 2020 showed an overall percent cover of native woody vegetation of 27.7 percent and non-native vegetation of 23.9 percent. Additional vegetation monitoring in FY 2021 included collecting information on tree height and leaf area index. Results showed that plots planted with koa (*Acacia koa*) 20 years ago at 3 x 3-meter densities were found to have an average leaf area index (LAI) of 0.69 and an average height of 7.7 meters. Additional Hawaiian native plants, including 'ōhi'a (*Metrosideros polymorpha*) and a'ali'i (*Dodonaea viscosa*), were out-planted in the existing koa plots in FY 2022.

As part of Tier 1 mitigation, habitat restoration efforts were expanded to the surrounding Tier 4 mitigation lands in FY 2022, adding ungulate barriers to this parcel. The landowner continues cattle grazing on the surrounding ranch lands, including the Tier 4 mitigation lands.

Tier 2 mitigation is completed. Auwahi worked with Frank Bonaccorso of the U.S. Geological Survey (USGS) to develop a research project combining radio telemetry and acoustic monitoring to track the success of mitigation efforts at Waihou and provide more information on the ecology of the Hawaiian hoary bat. Implementation of the plan began in March 2015 with the deployment of six acoustic detectors. Monitoring occurred under Tier 2 for one year; results have been reported previously.

The Tier 3 bat mitigation study conducted by the U.S. Geological Survey in the Pu'u Makua Restoration Area within the Waihou mitigation area is completed, and results were reported in FY 2019.

Tier 4 mitigation for the bat consists of protecting, managing, and enhancing 709 hectares of bat foraging and roosting habitat at 'Ulupalakua Ranch, and planning work began in FY 2020. The 709 hectares of land will be placed in a conservation easement held by the Hawaiian Islands Land Trust; the final conservation easement was fully executed on December 7, 2020. As part of management activities, Auwahi Wind began fence construction in FY 2021, with 44 hectares fenced off from cattle. A total of 30 hectares were planted, with approximately 10,000 koa planted, within the newly constructed hedgerow areas. Quarterly fence inspections also began in FY 2021, and two 50,000-gallon capacity ponds were constructed.

In FY 2022, Auwahi Wind completed the construction of the next 100-acre parcel. Maintenance and fence improvements occurred in FY 2024. 115 acres were planted within the fenced area with approximately 3,000 native seedlings.

Insect and acoustic bat monitoring was initiated by the Project throughout the mitigation site in FY 2020 and was continued in FY 2024. Three malaise traps were set (one at a pond, one at a pasture, and one at a hedgerow) semi-annually. The final monitoring results observed only insects in the order Lepidoptera. A significant median Insect Capture Rate was observed between July and August, while a greater median capture rate was shown for pasture habitat when data were pooled for the entire year. Insect sampling was scheduled to continue twice per

year in FY 2024. Results from future sampling years will be compared to baseline values established in FY 2021 to inform adaptive mitigation measures if required.

Regarding acoustic monitoring for Tier 4 mitigation, the average detection throughout the study area was 11.85 ± 0.68 calls per detector night in FY 2021. The highest detection rate occurred at two upper elevation detector sites within mesic land cover types, one of which was next to a pond. The second year of acoustic monitoring was completed in FY 2022. In FY 2023, it was found that the average number of Hawaiian hoary bat detections remained stable throughout the study area and increased in the second year of monitoring. The third year of acoustic monitoring was completed in FY 2023 and FY 2024. Due to malfunctions in the microphones, there were low to zero bat detections for most of Year 3 monitoring.

As obligated in the approved HCP amendment, Auwahi Wind began funding a single-year occupancy study of the Hawaiian Hoary Bat on Leeward Haleakalā during the reporting period. The study area spans from Ahihi-Kinohiō Natural Area Reserve to the Kaupō gap, and from the summit of Haleakalā to the coast. The results, made available in FY 2021, show that overall bat detection and occupancy rates were much higher than a similar study performed over three years on O‘ahu. Bat activity rates were 80 percent at the Leeward Haleakalā study site over one year compared to 3 percent over three years on O‘ahu.

In preparation for the anticipated Tier 5 mitigation needs, Auwahi Wind deployed acoustic detectors in May 2021 to gather baseline information on bat acoustic activity at the proposed mitigation area at Kamehamehame; these detectors were checked regularly in FY 2024. The first year of monitoring for bat detections during acoustic surveys from May 11 – September 17, 2021, resulted in a total call abundance (bat calls / detector-nights) of 39.04 ± 3.81 and a nightly detection (nights bats detected / total detector-nights) of 0.98.

Auwahi Wind submitted a sixth draft of the Tier 5 Site Specific Mitigation Implementation Plan (SSMIP) for the Hawaiian hoary bat in FY 2024. Auwahi Wind will continue to coordinate closely with DOFAW and USFWS in developing its site-specific mitigation implementation plan.

Blackburn’s Sphinx Moth. Baseline mitigation for Blackburn’s Sphinx Moth (BSM) consisted of a contribution of \$144,000 to the Leeward Haleakalā Watershed Restoration Partnership in 2012, to restore dryland forest by planting the equivalent of six acres of native endangered ‘Aiea (*Nothocestrum latifolium*) throughout the Auwahi Forest Restoration Project. ‘Aiea is known to serve as a host plant for the endangered BSM. In FY 2019, the goal of planting 1,500 ‘Aiea plants on 11 acres was reached, and Auwahi Forest Restoration Project fulfilled the MOU requirements. During FY 2021, 47 tree tobacco (*Nicotiana glauca*) plants, a non-native invasive host plant for the moth, were removed from the wind farm site. In FY 2024, 87 tree tobacco plants were removed from the Project, and most of them were observed to be immature vegetative. Auwahi continued monthly field surveys for BSM in FY 2024, with detections noted every month.

Kahuku Wind Power Habitat Conservation Plan, O‘ahu, Hawai‘i. Approved 2010.

ITL Licensee: Kahuku Wind Power, LLC
(Note that Terraform Power owns Kahuku, LLC)

Project: Twelve WTGs with a total 30-MW energy-generating capacity

ITL Duration: June 7, 2010 – June 7, 2030 (as of end of FY 2023, 14 years (70%) through the permit term)



Kahuku facility on the North Shore of O‘ahu.

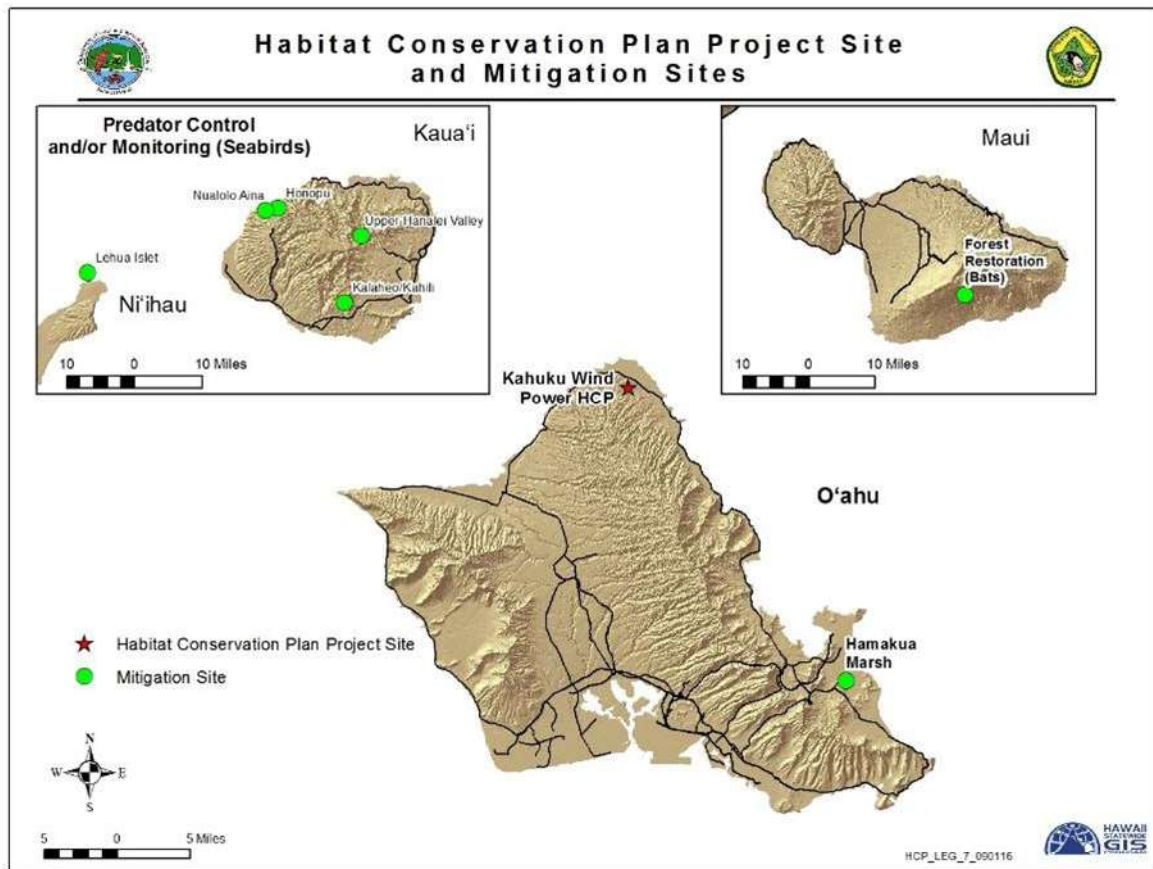


Figure 6. Location of Kahuku HCP and Mitigation Sites

Take Authorization Over 20-year Term:

Table 9. Take Authorization for Kahuku Wind HCP.

Common Name	Scientific Name	Level of Take ¹	Annual Take Limit ²	5-year Take Limit ³	20-year Take Limit ³
‘Ua‘u or Hawaiian Petrel	<i>Pterodroma sandwichensis</i>	Baseline	4	8 adults/ juveniles	8 adults/ juveniles
		Higher	8	12 adults/ juveniles	12 adults/ juveniles
‘A‘o or Newell’s Shearwater	<i>Puffinus auricularis newelli</i>	Baseline	3	9 adults/ juveniles	12 adults/ juveniles
		Higher	6	12 adults/ juveniles	18 adults/ juveniles
Koloa Maoli or Hawaiian Duck	<i>Anas wyvilliana</i>	Baseline	4	12 adults/ juveniles	16 adults/ juveniles
		Higher	8	16 adults/ juveniles	24 adults/ juveniles
Ae‘o or Hawaiian Stilt	<i>Himantopus mexicanus knudseni</i>	Baseline	3	9 adults/ juveniles	12 adults/ juveniles
		Higher	6	12 adults/ juveniles	18 adults/ juveniles
‘Alae Ke‘oke‘o or Hawaiian Coot	<i>Fulica alai</i>	Baseline	3	9 adults/ juveniles	12 adults/ juveniles
		Higher	6	12 adults/ juveniles	18 adults/ juveniles
‘Alae ‘Ula or Hawaiian Moorhen	<i>Gallinula chloropus sandvicensis</i>	Baseline	4	10 adults/ juveniles	14 adults/ juveniles
		Higher	7	14 adults/ juveniles	20 adults/ juveniles
‘Ōpe‘ape‘a or Hawaiian Hoary Bat ⁴	<i>Lasiurus cinereus semotus</i>	Baseline	7	14 individuals	16 individuals
		Higher	14	16 individuals	23 individuals
Pueo or Hawaiian Owl	<i>Asio flammeus sandwichensis</i>	Baseline	4	12 adults	16 adults
		Higher	8	16 adults	24 adults

¹ Take authorization is delineated by Baseline and Higher limits (Tiers). Upon reaching Higher limits additional mitigation measures or funding are triggered to ensure that mitigation keeps pace with take.

² Exceeding the Annual Take Limit (including observed and unobserved take) will require adaptive management, increased mitigation, or a major ITL amendment.

³ “5-year” and “20-year” take limits are cumulative for the respective period of years.

⁴ Minor amendment to clarify permitted bat take was not processed on November 26, 2014, so the take limit is 23 adult individuals

Status of ITL: Two female Hawaiian hoary bats were documented taken at Kahuku Wind Power during the FY 2024 reporting period, but no other HCP-covered species take was observed (Table 10).

Table 10. Documented fatalities of HCP covered species during the reporting period.

Common Name	FY2024 Fatalities
Hawaiian Hoary Bat	2

Table 11 provides an estimate of the overall total adjusted take that has occurred since Kahuku Wind ITL issuance.

Table 11. Total observed fatalities and estimated total take since ITL issuance under the Kahuku Wind Power ITL as of June 30, 2023.

Common Name	Total Observed Take	Estimated Unobserved Take ¹	Indirect Take using HCP multipliers ²	Total Estimated Take
Hawaiian Hoary Bat	10	12	3	25

¹ 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.

² DNA results have identified the sex of five of the eight bat fatalities detected at the Project, confirming that three of the fatalities were female. Sex identification of one carcass did not yield a confirmed sex, and the sex of the remaining two bat fatalities will be incorporated once confirmed by genetic testing.

In December 2014, the downed wildlife search area was reduced relative to previous years to a 35-meter radius plot centered on each turbine, and in April 2015, search frequency was increased from monthly to weekly. For FY 2022, starting in January 2021, weekly searches primarily occurred over two consecutive days, with searches conducted at six of the 12 WTGs each day; searches were occasionally completed at all turbines on a single day. All searches were conducted by canine teams in FY 2024 once per week, all year round.

Kahuku additionally monitored bat activity at the project site with four ground-based acoustic detectors at each WTG. Between June 1, 2021, and May 31, 2024, Hawaiian hoary bats were detected on 91 nights out of 1,281 detector nights (7.1 percent of detector nights). Seasonal patterns of detection rates were comparable with previous years.

Kahuku continues to implement adaptive management measures, including adjustments in vegetation management and scavenger control efforts at the project site. LWSC of all turbines at wind speeds of up to 5 meters per second began on April 27, 2012, and is implemented between sunset and sunrise from April through November. Feathering blades achieve curtailment to minimize rotation. The Project operates under the LWSC regime described, and Kahuku conducts regular checks to confirm that the LWSC programming is operating as intended. Seven bat fatalities have been observed over approximately 12 years since the initiation of LWSC implementation at Kahuku, compared to three bat fatalities found across two calendar years before the initiation of LWSC. Based on the two bat fatalities found in FY 2024, Kahuku is working with DOFAW and USFWS on an HCP amendment, including adding acoustic bat deterrents to the turbines and potential redistribution of curtailment.

Mitigation Status:

Hawaiian Petrel & Newell’s Shearwater. Under the Kahuku Wind HCP, the seabird mitigation plan for Newell’s Shearwater and Hawaiian Petrel requires the ITL holder to fund seabird colony-based protection and management measures on the island of Kaua’i. Kahuku Wind also funded the Kaua’i Endangered Seabird Recovery Project to deploy and then analyze data from Wildlife Acoustics SM2TM Song-meters at multiple locations in Kaua’i’s remote mountains to survey for Newell’s Shearwater and Hawaiian Petrel nesting colonies. All seabird mitigation work was completed before FY 2021.

Hawaiian Stilt, Hawaiian Coot, Hawaiian Moorhen, and Hawaiian Duck. Baseline mitigation for the four waterbird species covered under the ITL consisted of payments to DOFAW to conduct predator control and wetland restoration at Hāmākua Marsh, part of the State’s Kawainui-Hāmākua Marsh Complex, for four years from FY 2012-2015. All waterbird mitigation work was completed before FY 2021.



‘Alae ‘Ula or Hawaiian Moorhen swimming at Hāmākua Marsh

Hawaiian Hoary Bat. Under the Kahuku Wind Power HCP, baseline bat mitigation consisted of a \$150,000 payment to DOFAW (procured on May 31, 2012) for preserving or enhancing foraging and roosting habitat by constructing an ungulate-proof fence around a roughly 280-acre section of the State Kahikinui Forest Reserve and State Nakula Natural Area Reserve. In FY 2015, approximately 2,500 meters of fence were installed to enclose the unit. In FY 2020, Kahuku Wind Power, LLC began mitigation planning for the higher level of take and contributed funding to the U.S. Geological Survey for future Hawaiian Hoary Bat ecological research.

Mitigation planning for a Higher Take (Tier 2) was initiated in FY 2020. Based on input from USFWS and DOFAW, KAH is working with DOFAW O‘ahu to conduct management actions beneficial to bats at one of DOFAW’s recent bat mitigation property acquisitions on O‘ahu, the Helemano Section of the ‘Ewa Forest Reserve (Helemano Mitigation Area). Within this area, opportunities exist to perform habitat modification that is anticipated to achieve the required benefits for bats. In FY 2024, Kahuku, in collaboration with agencies and with input from the ESRC, finalized a Tier 2 Mitigation Plan identifying habitat modification actions that are additive and complementary to the broad management goals and forest management activities identified and previously executed by DOFAW O‘ahu. Kahuku is now working on the implementation of the plan in FY 2025. Baseline acoustic monitoring for bat activity began in March 2023 with the deployment of 12 SM4BAT-FS detector units, each with an SMM-U2 microphone placed at and moved to randomly selected locations within the mitigation area monthly. This monitoring effort was completed in July 2024. Baseline insect sampling began in August 2023 and was completed in July 2024. In addition to and separate from the primary baseline acoustic monitoring effort, one acoustic monitor (SM2BAT+ with SMX-U1 microphone) was deployed at the site of a proposed water feature installation within the Helemano Mitigation Area to capture baseline activity at the location before mitigation actions.

Pueo. Obligations for Pueo mitigation were completed before FY 2016. These included payments of \$50,000 for Pueo research on O‘ahu aimed at determining population status and management priorities. 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://www.pueoproject.com>. \$25,000 was also provided to the Hawaii Wildlife Center before FY 2021.

Kawailoa Wind Power Habitat Conservation Plan, O‘ahu, Hawai‘i. Approved 2012.

ITL Licensee: Kawailoa Wind Power, LLC
(Note that DESRI IV, LLC now owns Kawailoa Wind Power, LLC; it is an investment fund managed by D.E. Shaw Renewable Investments, LLC)

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

ITL Duration: January 6, 2012 – January 6, 2032 (as of end of FY 2024 12.5 years (62.5 %) through the permit term)



Kawailoa Wind Power, O‘ahu



Figure 7. Location of Kawailoa HCP and Mitigation Sites

Take Authorization Over 20-year Term:

Table 12. Take Authorization for Kawaihoa Wind HCP.

Common Name	Scientific Name	Level of Take ¹	5-year Take Limit ²	20-year Take Limit
‘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 ³	<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
‘Ua‘u or Hawaiian Petrel	<i>Pterodroma sandwichensis</i>	Not Applicable	Not Applicable	19 adults/fledglings and 5 chicks/eggs

¹ Take authorization is delineated by Baseline and Higher limits (Tiers). Upon reaching Higher limits additional mitigation measures or funding are triggered to ensure that mitigation keeps pace with take.

² Exceeding the 5-year Take Limit (including observed and unobserved take) will require adaptive management, increased mitigation, or a major ITL amendment.

³ Minor amendments to clarify permitted bat take were processed on November 26, 2014.

Status of ITL: There was one documented fatal take of Hawaiian Hoary Bats and no take of Hawaiian Petrels during the reporting period at the Kawaihoa Wind Power facility in FY 2024.

Table 13 estimates the overall total adjusted take that has occurred since Kawaihoa Wind ITL issuance.

Table 13. Total observed fatalities and estimated total take since ITL issuance under the Kawaiiloa Wind Power ITL as of June 30, 2024.

Common Name	Total Observed Take ¹	Estimated Unobserved Take ²	Indirect Take using HCP multipliers	Total Estimated Take
Hawaiian Hoary Bat	41	47	9	97
Hawaiian Petrel	0	2 adults	2 chicks/eggs	2 adults and 2 chicks/eggs

¹ 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).

² 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.

ND - Not determined.

Fatality monitoring at the Project continued throughout FY 2024 at all wind turbine generators (WTG). In FY 2024, search areas consisted of 55-meter-radius circles centered on each turbine and roads out to 75 meters from each turbine. For the two un-guyed meteorological towers, the search area consisted of a 50-meter-radius circle centered on each tower. The mean search interval for both turbines and the meteorological towers in FY 2024 was 7.0 days. In previous years, when conditions limited the use of dogs (e.g., weather, injury, availability of canine search teams), search plots were visually surveyed by Project staff; however, canine teams conducted 100 percent of the WTG searches in FY 2024.

The total estimated take of 97 Hawaiian Hoary Bats (with 80% statistical certainty and indirect take) falls within the Tier 4 bat take request for the species detailed in the amended HCP. Kawaiiloa submitted an amended HCP to the agencies for review and approval in FY 2019 to increase the amount of Hawaiian Hoary Bat take and add the Hawaiian Petrel to their ITL. After the contested case hearing for this amendment was dismissed in January 2021, the BLNR unanimously voted to approve the HCP amendment in February 2021. The amended ITL was issued by DOFAW on February 26, 2021, and signed by Kawaiiloa Wind on March 30, 2021.

To minimize Hawaiian Hoary Bat take, in FY 2019, Kawaiiloa Wind reduced the number of turbine stop/start events per night by extending the rolling average time from 10 to 20 minutes. However, the 20-minute rolling average resulted in unanticipated wind turbine behavior, and the project returned to a 10-minute rolling average in FY 2020. In FY 2021, the rolling average was again reverted to a 20-minute average in January 2021. Following an agency review of Tetra Tech’s analysis, however, Kawaiiloa returned to a 10-minute average in April of 2021, where it remained until the end of FY 2022. The Project continued operating under the 10-minute rolling average LWSC regime for FY 2024. The project installed acoustic deterrents at all 30 project turbines in May and June 2019. Based on data provided by NRG, the total sitewide deterrent availability for the Project was 95.4 percent in FY 2024.

Mitigation Status:

Newell’s Shearwater. 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 the end of FY 2015.

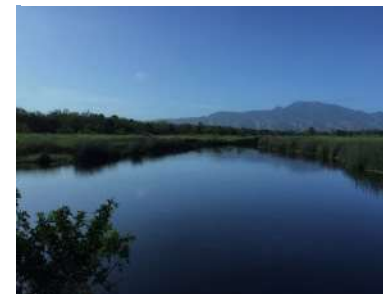
Hawaiian Petrel. To mitigate for impacts to this species, Kawaihoa funded one year of monitoring and predator control at the Hanakāpī‘ai and Hanakoa seabird colonies within the Hono O Nā Pali Natural Area Reserve on Kaua‘i in 2020. Final reports from Kaua‘i Endangered Seabird Recovery Project and Hallux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

In response to a contested case settlement, Kawaihoa Wind provided \$250,000 to Pacific Rim Conservation in October 2021 (FY 2022) to carry out research related to Hawaiian Petrels on O‘ahu. The goal of this project is to determine whether Hawaiian Petrels detected in previous surveys were prospecting or breeding on O‘ahu. Pacific Rim Conservation’s research related to Hawaiian petrels on O‘ahu continued in FY 2024 using funds provided by Kawaihoa Wind. Pacific Rim Conservation is conducting ground searches and auditory surveys, as well as deploying automated acoustic recording units to accomplish this goal. The funds from Kawaihoa Wind will also be used for the 2025 to 2026 breeding seasons (L. Young/Pacific Rim, per. comm., July 2022).

Hawaiian Duck, Hawaiian Stilt, Hawaiian Moorhen, & Hawaiian Coot. The ‘Uko‘a Wetland mitigation program for Tier 1 mitigation continued for waterbirds during FY 2024. 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 2024, waterbird surveys were conducted weekly from July 2023 through August 2023 and then again from December 2023 through June 2024. A total of 39 waterbird surveys were completed in FY 2024. 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.



Water hyacinth within removal area before removal work was initiated (Top), and after removal was complete (Bottom).



In FY 2024, Hawaiian gallinules (either adults, chicks, or fledglings) were observed on every survey date and were recorded at eight out of the nine PC stations. Two gallinule breeding events were observed in FY 2024. The breeding event observed in April 2024 resulted in the successful fledging of one gallinule. The second event was observed in late June 2024, so the outcome of this breeding effort has yet to be determined; as of June 30, 2024, one gallinule chick was still present. In total, 17 Hawaiian common gallinule/‘alae ‘ula (*Gallinula chloropus sandvicensis*) fledglings have been recorded at ‘Uko‘a since monitoring began following management. In FY 2024, Hawaiian stilts were observed on 31 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 began 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 Kawailoa 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), Kawailoa Wind is in discussion with USFWS and DOFAW regarding adaptive management of waterbird mitigation.

Hawaiian Hoary Bat. During FY 2024, 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 2024 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



Female Hawaiian Hoary Bat caught at 'U'koa Wetland, Oahu.

following the initial peak in September and the transition to the post-lactation (September to mid-December) reproductive period. In FY 2024, 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 2024, 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 2024, a total of 138 predators were removed from 'Uko'a Wetland including 27 pigs, 95 mongoose, 16 rats, and 1 cat (Grey Boar 2022a, Grey Boar 2022b, Grey Boar 2023a, Grey Boar 2023b). In FY 2024, tracking tunnels were set out in September 2023, December 2023, and March 2024. Twenty-five tracking tunnels were used to detect predator presence in FY 2024. Mongoose activity varied between 8.0 and 25.9 percent and showed the highest activity rates of the predators. Mice and cats were not detected. During FY 2024, several sections of fence were repaired. During the 2024 Bat Sampling Period (June 2023 to May 2024) of acoustic surveys, Hawaiian hoary bats were detected on 595 nights out of 2,227 detector-nights sampled (26.7 percent). The annual detection rate in the 2024 Bat Sampling Period was greater to the annual detection rate during the previous sampling year. During FY 2024, bat lane maintenance of eight lanes occurred in May 2024.

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 Kawailoa 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 Kawaioloa Wind paid the remaining funding obligations for this research project in FY 2022, Kawaioloa 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. Kawaioloa 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>.

Nā Pua Makani Wind Energy Project Habitat Conservation Plan, O‘ahu, Hawai‘i. Approved 2019.

ITL Licensee: Nā Pua Makani Power Partners, LLC
(Note that AES Corporation owns Na Pua Makani Power Partners, LLC)

Project: Eight WTGs with a total 24-MW energy generating capacity

ITL Duration: April 30, 2019 – April 30, 2040 (as of end of FY 2024, 6 years (28.6%) through the permit term)



Na Pua Makani Wind Energy Project, O‘ahu

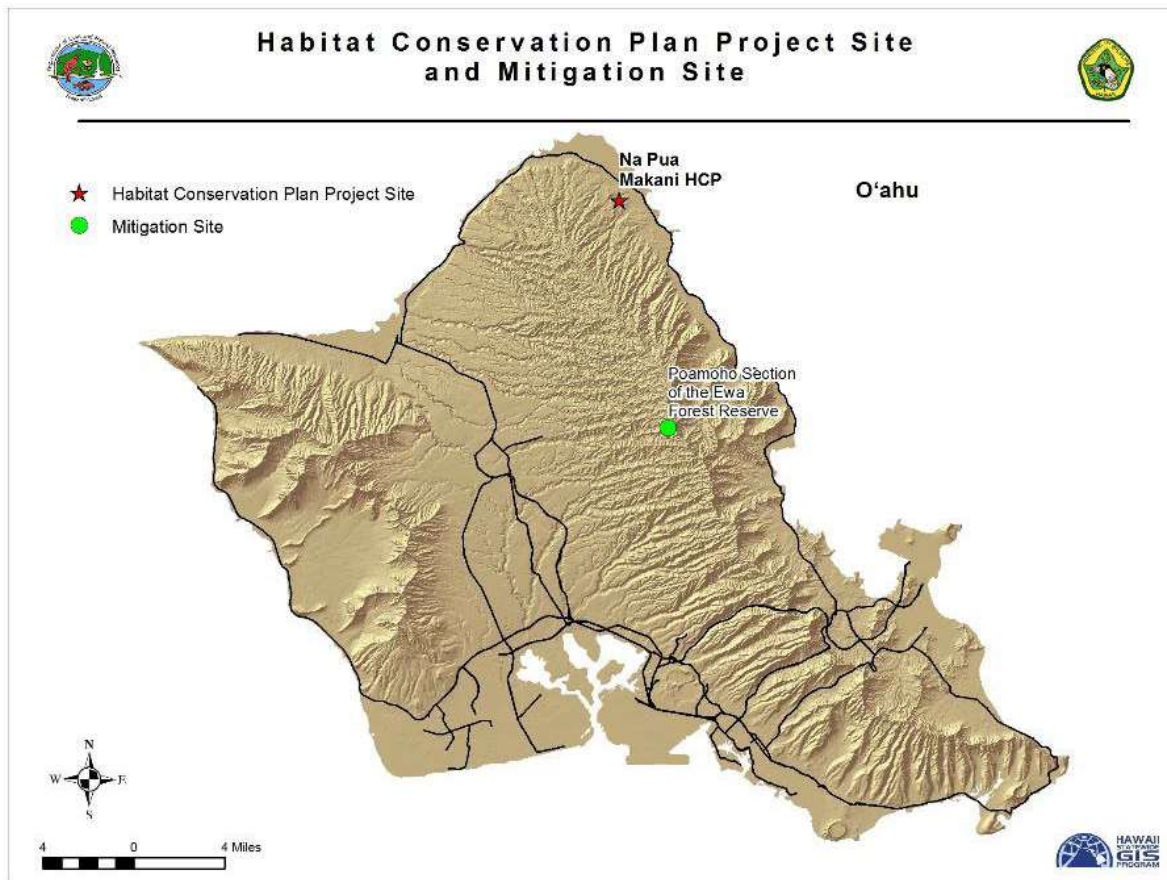


Figure 8. Location of Nā Pua Makani HCP and Mitigation Site

Take Authorization Over 21-year Term:

Table 14. Take Authorization for Nā Pua Makani Wind Energy Project HCP.

Common Name	Scientific Name	Level of Take	21-year Take Limit
‘Ōpe‘ape‘a or Hawaiian Hoary Bat	<i>Lasiurus cinereus semotus</i>	Tier 1	34 bats
		Tier 2	51 bats
‘A‘o or Newell’s Shearwater	<i>Puffinus newelli</i>	Length of permit	4 adults/immatures and fledglings & 2 chicks/eggs
Nēnē or Hawaiian Goose	<i>Branta sandvicensis</i>	Length of permit	6 birds
Koloa Maoli or Hawaiian Duck	<i>Anas wyvilliana</i>	Length of permit	4 birds
Ae‘o or Hawaiian Stilt	<i>Himantopus mexicanus knudseni</i>	Length of permit	4 birds
‘Alaekē‘oke‘o or Hawaiian Coot	<i>Fulica alai</i>	Length of permit	8 birds
‘Alae ‘ula or Hawaiian Moorhen	<i>Gallinula chloropus sandvicensis</i>	Length of permit	8 birds
Pueo or Hawaiian Short-eared Owl	<i>Asio flammeus sandwichensis</i>	Length of permit	4 adults/fledged young & 4 chicks/eggs

Status of ITL: There was no take of HCP covered species at Nā Pua Makani in FY 2024.

In FY 2019 the Project began construction, which continued throughout FY 2020; the project began commercial operations in December of 2020. Although there was no take of covered species at the Nā Pua Makani Wind Energy facility in FY 2021, one endangered Hawaiian Petrel was found near a wind turbine prior to facility operation. This take was attributed to likely attraction by security lights. Nā Pua Makani is working with the agencies to amend its HCP and ITL to include the Hawaiian Petrel as a covered species. As of FY 2024, the project has a cumulative estimated take of 4 Hawaiian Hoary Bats (with 80% statistical certainty and indirect take) (Table 15). No night work requiring lights that could attract wildlife occurred in FY 2024. Throughout FY 2024 downed wildlife monitoring at the Project consisted of standardized fatality monitoring according to the Project’s PCMM Implementation Plan (Tetra Tech 2022b) and a revised plan submitted in December 2023, following an agency site visit (Tetra Tech 2023). The PCMM Implementation Plan describes how the Project implements the PCMM program provided in the HCP based on the Project construction footprint, current land use patterns, and topography. Under the PCMM Implementation Plan as performed in FY 2024, NPMPP conducted weekly searches with trained canine search teams within systematic search areas. These systematic search areas consist of areas that were cleared and graded during Project construction at each of the Project’s eight turbines and can be practicably maintained in low-growing vegetation through mowing. In addition, as site conditions allowed, a canine search team performed supplemental searches within active agricultural areas. All such areas that can be searched consistently during any fiscal quarter will be incorporated into fatality estimate(s). Nā Pua Makani Wind Energy performed associated bias correction trials and searches throughout

FY 2024 and incorporated consistently searched supplemental search area results into the analysis of the take estimate.

Table 15. Total observed fatalities and estimated total take since ITL issuance under the Na Pua Makani Wind Energy ITL as of June 30, 2024.

Common Name	Total Observed Take ¹	Estimated Unobserved Take ²	Indirect Take using HCP multipliers	Total Estimated Take
Hawaiian Hoary Bat	1	2	1	4

¹ 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).

² 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.

Mitigation Status:

Newell's Shearwater. In FY 2021, Nā Pua Makani provided the required mitigation funds to the National Fish and Wildlife Foundation (NFWF). Although no programs have yet been funded with these funds, mitigation status and results for Newell's Shearwater will be reported when NFWF identifies an appropriate mitigation project.

Hawaiian Hoary Bat. The mitigation plan for the Hawaiian hoary bat in the HCP includes preparation and implementation of research and management plans targeting actions that will improve and protect bat habitat in the Poamoho Management Area and study the effectiveness of habitat restoration activities on improving the availability of bat food resources, increasing bat activity, or other appropriate variables. Several revisions to the associated research and management plans were submitted and reviewed by DOFAW and USFWS in FY 2024. In Q3, revised versions of the plans were submitted for review by the Endangered Species Recovery Committee (ESRC). The Q4, the ESRC recommended revisions to the plans including close coordination with all stakeholders involved in the management of the Poamoho Management Area. Through the close of Quarter 4, NPMPP met with stakeholders and worked on revisions to the mitigation plan. NPMPP anticipates submittal of a revised mitigation plan in Q1 FY 2025.

In Q2 FY 2024, NPMPP and Tetra Tech submitted a revised research plan for review. In Q4, Tetra Tech presented the plan for review by the ESRC. The ESRC recommended the development of a further revised plan that more directly evaluates the efficacy of deterrents. Upon receiving additional input from DOFAW on potential research sites, NPMPP will further revise the plan and submit for ESRC review. Post construction monitoring for bat activity began in September 2020 and is currently in the fourth monitoring year. Monitoring was conducted at four locations (turbines 1, 4, 6, and 9) using ground-based recording units. Across the four turbines monitored during FY 2024 (June 2022 – May 2023), Hawaiian hoary bats were detected on 138 nights out of the 1334 (10.3 percent) detector-nights sampled. Detection rates were highest from July through October during the lactation and post-lactation reproductive periods, with a peak (0.23) occurring in the months of August and September. Following November, bat activity continued to decline throughout the pre-pregnancy reproductive period, with a lowest detection rate (0.01) observed in the month of February. Detection rates increased again in April and May of the pregnancy reproductive period. The annual detection rate during the FY 2024 monitoring period (10.3 percent) was higher than the observed annual detection rate (6.1 percent) for the previous FY 2023 monitoring period.

Hawaiian Short-eared Owl. Nā Pua Makani provided the required mitigation funds to DOFAW's Endangered Species Trust Fund in September of 2020. An MOU was finalized between Nā Pua Makani and DOFAW in February of 2021 to cover use of funds and reporting requirements. DOFAW used these funds to support a University of Hawai'i graduate research project on Hawaiian short-eared owl breeding ecology including nest site selection and nesting success, and the timing of courtship and nesting. A preliminary report for the first year of study was submitted to DOFAW in July of FY 2022. DOFAW reported that a final report was being prepared (pers. comm. M. Giraldo-Perez, July 2023). The report can be found in the FY 2023 annual report.

Hawaiian Goose. The Hawaiian Goose was extirpated from O'ahu prior to the construction and operation of the Project and DOFAW and Nā Pua Makani have agreed that the Project currently poses no risk to the species. The wind farm will therefore modify the mitigation framework for the Hawaiian Goose via an HCP major amendment to most likely remove the Hawaiian goose from the HCP and incidental take license.

Hawaiian Waterbirds. DOFAW and Nā Pua Makani agreed that a modified program implemented at Hāmākua Marsh, which reduces fatalities and/or increases productivity of the resident waterbird species, is appropriate mitigation for take at the facility (the fencing, public outreach, and staffing program identified in the HCP was determined to be no longer viable). Based on this need, Nā Pua Makani has submitted and received agency comments on multiple drafts of an Nā Pua Makani updated Hawaiian waterbird mitigation plan, including two in FY 2023 (Quarter 1 and Quarter 4). Nā Pua Makani has received USFWS and DOFAW approval of an updated Hawaiian waterbird mitigation plan in FY 2024 and implementation is to begin in FY 2025.

Transportation Projects

Relocation of *Abutilon menziesii* Habitat Conservation Plan, Kapolei, O‘ahu. Approved 2004.

ITL Licensee: Hawai‘i Department of Transportation (HDOT)

Project: Development of 1,381-acre East Kapolei Master Plan project and construction of the North-South Road arterial highway bisecting the property

ITL Duration: March 18, 2005 – July 31, 2021 (100% through the permit term)



*Ko'oloa'ula (Abutilon menziesii),
Island of O'ahu.*

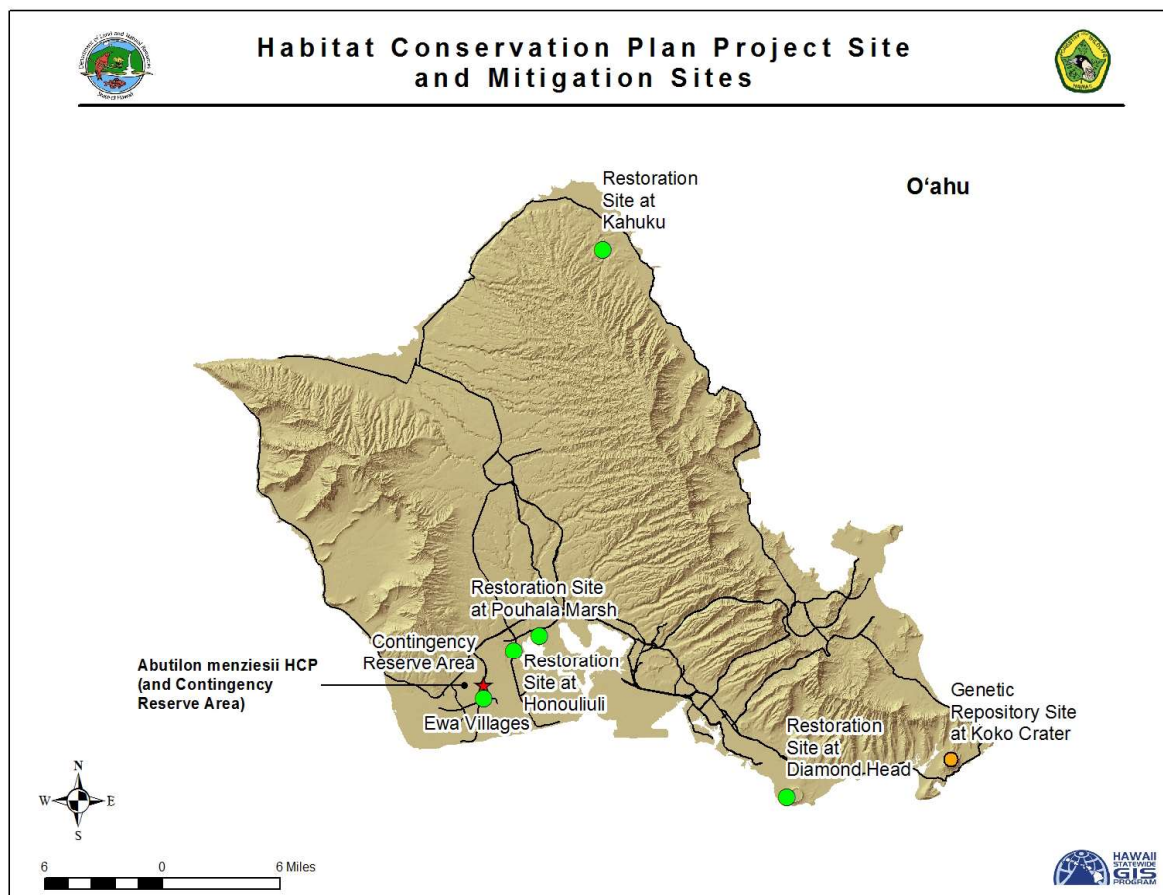


Figure 9. Location of *Abutilon* HCP and Mitigation Sites

Take Authorization:

Table 16. Take Authorization for *Abutilon* HCP.

Common Name	Scientific Name	Total Authorized Over ITL Duration
Ko'oloa'ula	<i>Abutilon menziesii</i>	All individual plants within the 1,381-acre project area

Status of ITL: Five mitigation sites were established, and a genetic repository location contains plants with genetic representation of the translocated plants. A Contingency Reserve Area (CRA) was established where additional plantings were to remain until success criteria were met at the three mitigation sites. The HCP officially concluded a month after the end of the FY 2021 fiscal year (July 31, 2021) without meeting success criteria.

Sub-permittees under this HCP, which includes the Department of Hawaiian Home Lands (DHHL), HART, UH West O'ahu, and the City and County of Honolulu, were interested in obtaining continued take coverage of *Abutilon* on their properties. They were not able to obtain coverage under the now-expired HCP because HDOT was unwilling to extend the HCP and ITL terms. In February of FY 2022, DHHL initiated discussions with DOFAW to discuss the development of a potential new HCP for *Abutilon menziesii*. At the beginning of FY 2024, DOFAW met again with DHHL and other interested parties to reinvestigate this potential. No further progress has been made by interested parties in creating a new HCP. The parcel remains in DLNR Land Division ownership. Due to prior agreements between DLNR Land Division and DHHL, DLNR Land Division must provide DHHL with a developable parcel. DHHL claims the CRA is undevelopable due to the presence of endangered plants on site however, they have not proposed a new HCP/ITL. Meanwhile, DOFAW is working with the DLNR Land Division to prepare the CRA parcel for transfer to DHHL, which requires relocating the remaining four plants to a suitable location.

Mitigation Status:

The goal of the HCP was to initiate and sustain a program that will result in an overall net gain in the number of endangered *Abutilon menziesii* plants on O'ahu. The end goal was the establishment of three wild sites that protect self-sustaining populations of *A. menziesii* from the single degraded Kapolei population. Wild populations of *A. menziesii* have been successfully established at the following sites: 1) Diamond Head State Park; 2) Honouliuli Refuge, part of the U.S. Fish and Wildlife Service's O'ahu National Wildlife Refuge Complex; and 3) Pouhala Marsh on City and County property in Waipahu. Three new sites were established in FY 2018 to bring this species' conservation efforts into current DOFAW projects with long-term project investment by the DOFAW O'ahu Branch. They are Hāmakua Marsh in Kailua, Makua Kea'au Forest Reserve in western O'ahu, and a Wai'anae Mountains Watershed Partnership restoration site in Wai'anae Kai. The species was being incorporated within these already established efforts to help ensure long-term progress at little to no added cost of expansion and maintenance efforts. Additionally, some out-planting occurred at the 'Ewa Villages Golf Course, which has successfully maintained 39 individuals, although due to irrigation, it is not considered a wild site. The primary genetic reserve site established at Koko Crater Botanical Garden has 139 mature (reproductive) plants (63% genetic representation).

The success criteria were not met by the end of the first month of FY 2022 when the ITL expired. Therefore, the Contingency Reserve Area (1,381-acre project area) can not be developed. As of early 2021, the Contingency Reserve Area population had 22 individual plants,

a decline from 29 mature *A. menziesii* plants in FY 2020 and 35 mature plants in FY 2019. Owing to the lack of funding provided by the HDOT to do mitigation work, the last time O‘ahu Branch surveyed the Contingency Reserve Area for remaining plants was on July 28, 2020. From a founder population of 133 plants on the project site in 2002, out-planting efforts have resulted in 107 founders genetically represented at all the sites. When the last surveys were completed in FY 2020, 628 mature *A. menziesii* plants were present across all the HCP populations at the targeted wild sites, the genetic reserve sites, and the Contingency Reserve Area. No new plants were out-planted during the FY 2021 reporting period nor by the expiration of the ITL.

In FY 2020, DOFAW completed a full monitoring survey of all the management sites. This monitoring data showed that the long-term criteria still need to be met, and additional management is required. The main reason for the lack of seedling recruitment and survivorship may be a lack of sufficient moisture, which may be due to various factors. However, the expansion of populations via clonal growth (such as rooting of the overhanging branches) has been observed. It could have warranted a revision to the HCP's success measures.

Funding Source and Status: DOFAW received funding from HDOT to implement mitigation activities, which was exhausted in January 2020. DOFAW was committed to managing the project through the remaining ITL term and, during FY 2021, continued to seek discussions with HDOT on achieving the HCP's success criteria. However, by the end of FY 2021, HDOT had not responded to requests to continue funding the project to meet success criteria.

Other Development Projects

Cyanotech Aquaculture Facility Habitat Conservation Plan, Keahole Point, Hawai‘i.



ITL Licensee: Cyanotech Corporation

Project: Commercial microalgae farming operation

ITL Duration: Original Endangered Species Permit: April 2002 (short term); Subsequent ITL December 24, 2003 – March 17, 2016;

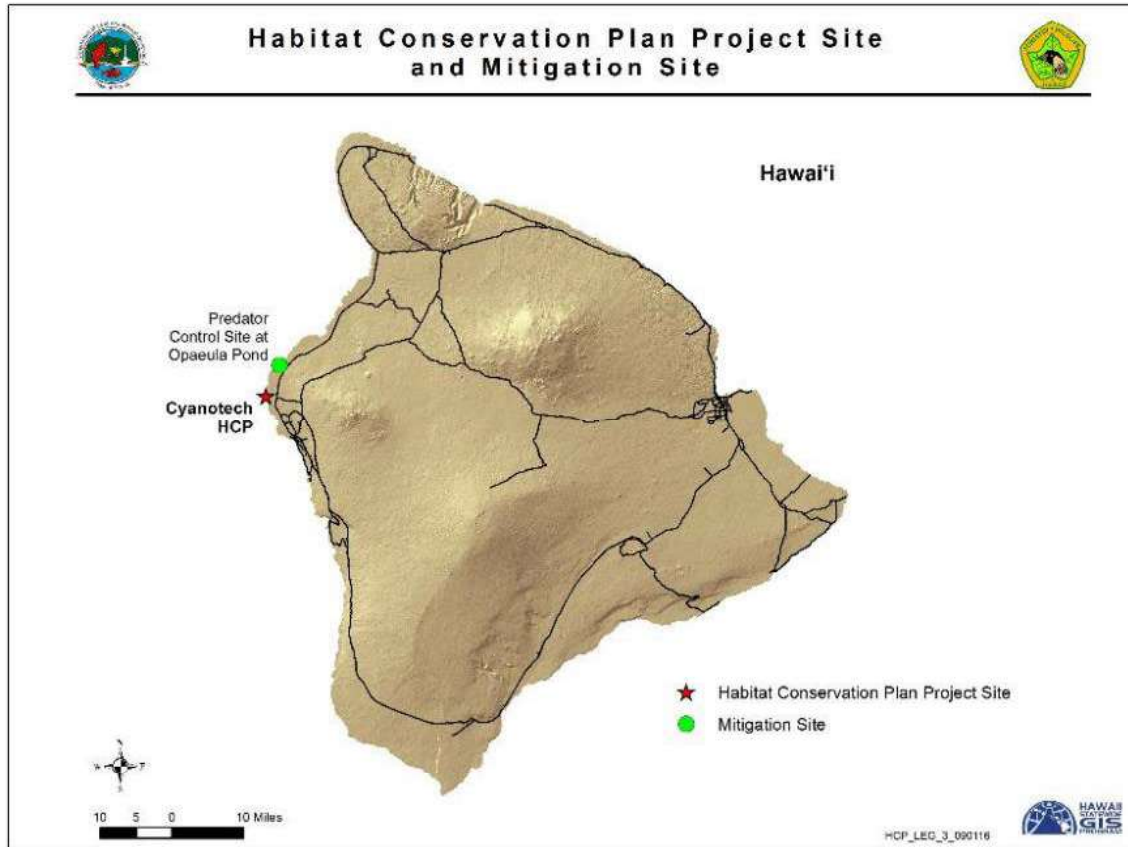


Figure 10. Location of Cyanotech HCP

Take Authorization Over 13-year Term:

Table 17. Take Authorization for Cyanotech HCP.

Permit Period	Common Name	Scientific Name	Total Authorized Over ITL Duration
2002-2016	Ae'o or Hawaiian Stilt	<i>Himantopus mexicanus knudseni</i>	The greater of, 45, or the number of chicks produced to offset losses
2016-2035* (requested renewal)	Ae'o or Hawaiian Stilt	<i>Himantopus mexicanus knudseni</i>	38 (requested)

*not yet approved

Status of ITL:

Cyanotech’s Incidental Take License (ITL) expired in March 2016. There was no reported take by Cyanotech of Hawaiian Stilts for FY 2024. In early FY 2024, DOFAW HCP, in conjunction with USFWS, met with Cyanotech’s leadership to present the need for a new State ITL and an amended Federal ITP. The agencies prepared a presentation with the necessary next steps for Cyanotech to complete. The agencies are awaiting further action from Cyanotech.

During FY 2024, the site was surveyed once a month (September 2023 to February 2024, six surveys) during the Hawaiian Stilt non-breeding season and once a week (every Wednesday, March to August 2024, 27 surveys) during the nesting season. No hazing was performed on the site.

September 2023 - February 2024

During the fall-winter seasons, an average of 56.7 Hawaiian Stilts were counted per survey (monthly). A high count of 90 occurred on January 17, 2024.

March-May 2024

During the spring season, an average of 17.7 Hawaiian Stilts were counted per survey (weekly). A high count of 30 Hawaiian Stilts occurred on March 13, 2024.

June - August 2024

During the summer season, an average of 12.5 Hawaiian stilts were counted per survey (weekly). A high count of 26 Hawaiian stilts occurred on July 17, 2024.

Two nests were documented with one and two hatchlings, respectively, but no fledglings were reported.

Table 18 estimates the overall total adjusted take since Cyanotech ITL issuance.

Table 18. Total observed fatalities since ITL issuance and estimated total adjusted take covered under the Cyanotech ITL as of June 30, 2016.

Common Name	Total Observed Take	Total Adjusted Take ¹
Hawaiian Stilt	18 adults, 7 chicks	43 fledglings

¹ Total adjusted take represented the number of fledglings, based on the survival rate of 2.17 fledglings per incidental adult take as described in the 2006 Cyanotech Amendment.

Mitigation Status:

Hawaiian Stilt. Before the HCP, mitigation occurred onsite at a lake managed as nesting and foraging habitat for stilts. Concerns about the proximity to the airport led to the onsite mitigation site being closed in 2002, with hazing implemented to discourage further nesting. Before being shut down, the on-site lake resulted in 237 fledglings, 48 of which fledged in 2002 and were “credited” to the HCP for the first year of permit coverage. According to a 2006 minor amendment, Cyanotech mitigation was to be satisfied by funding and implementing predator control at an off-site location. ‘Ōpae‘ula (now Kapo‘ikai) pond is a 3.24-hectare coastal wetland located in the North Kona district of Hawai‘i Island and was identified as a viable location for predator control efforts. Cyanotech worked with the private landowner to fund predator control efforts at ‘Ōpae‘ula pond to meet mitigation obligations to satisfy the HCP.

Renewal: In June 2016, Cyanotech requested a renewal of their ITL and HCP, with a request to take 38 Hawaiian Stilts for the following 19 years (2016-2035). Cyanotech is required to propose a suitable potential mitigation project within one year of approval. Cyanotech is working on an agreement with the County of Hawaii to provide predator control at the Kealakehe Wastewater Treatment Plant as part of their off-site mitigation.

Hōkūala (formerly known as Kauaʻi Lagoons) Habitat Conservation Plan, Kauaʻi, Hawaiʻi. Approved 2012.

ITL Licensee: Hōkūala, Kauaʻi Lagoons, LLC
(Note that Tower Kauaʻi Lagoons, LLC is the current name of the entity holding the license)

Project: Oceanfront resort encompassing approximately 600 acres

ITL Duration: April 11, 2012 – April 11, 2042 (as of end of FY 2024, 12 years (40%) through the permit term)



Kauaʻi Lagoons, Kauaʻi.

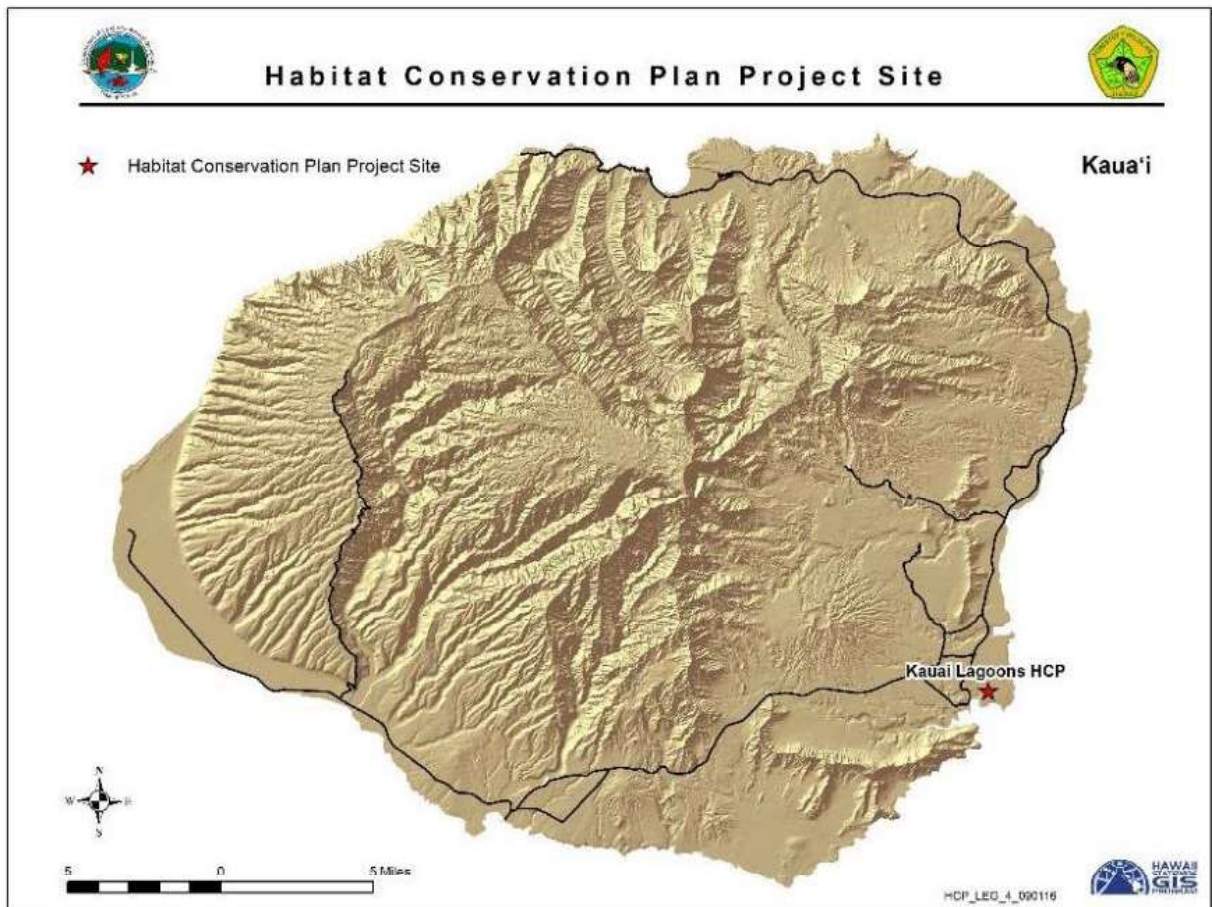


Figure 11. Location of Hōkūala HCP

Take Authorization Over 30-year Term:

Table 19. Take Authorization for Hōkūala HCP.

Common Name	Scientific Name	Type of Take	Total Authorized Over ITL Duration
‘A‘o or Newell’s Shearwater	<i>Puffinus auricularis newelli</i>	Life of permit	29 ^a
Koloa Maoli or Hawaiian Duck	<i>Anas wyvilliana</i>	Mortality or Non-Lethal	36
Ae‘o or Hawaiian Stilt	<i>Himantopus mexicanus knudseni</i>	Mortality or Non-Lethal	38
‘Alae Ke‘oke‘o or Hawaiian Coot	<i>Fulica alai</i>	Mortality	110
		Non-Lethal	180
‘Alae ‘Ula or Hawaiian Moorhen	<i>Gallinula chloropus sandvicensis</i>	Mortality	40
		Non-Lethal	30
Nēnē or Hawaiian Goose	<i>Branta sandvicensis</i>	Mortality or Non-Lethal	17
‘Ua‘u or Hawaiian Petrel	<i>Pterodroma sandwichensis</i>	Life of Permit	1
‘Akē‘akē or Band-rumped Storm Petrel	<i>Oceanodroma castro</i>	Life of Permit	1

^{an} Authorized level of take changed from 27 to 29 as processed under the September 2013 minor amendment.

Status of ITL:

Table 20 lists all notified documented incidental take during FY 2024.

Table 20. Documented incidental take of Covered Species at the Hōkūala site during the FY 24 reporting period.

Common Name	FY 2024 Fatalities
Hawaiian Moorhen	1
Hawaiian Coot	32
Hawaiian Goose	10
Newell’s Shearwater	2

Table 21 provides tentative observed mortalities that have occurred since Hōkūala ITL issuance. At the close of FY 2022, DOFAW found disparities in the licensee-reported observed take for Hawaiian Moorhen and Hawaiian Coot, which had not been settled before this reporting. Licensee is working with the agencies to address the disparities in reported take. An additional concern in Table 24 is the take rate for Hawaiian Moorhen and Hawaiian goose. Although only 40% of the license term is complete, well over 75% of the permitted Hawaiian Moorhen lethal take has been reached as of the end of FY 2022 (a value likely greater after the disparity in calculations for the species is rectified). Additionally, after take discrepancies have been addressed, there may be a need for adaptive management and an amendment to increase the take of Hawaiian goose, as they may be approaching the end of their take limit.

Table 21. Total observed incidental take since ITL issuance under the Hōkūala ITL as of June 30, 2024.

Common Name	Total Observed Take ^a
Newell’s Shearwater	14
Nēnē	11
Hawaiian Moorhen	40
Hawaiian Duck	6

Common Name	Total Observed Take ^a
Hawaiian Stilt	0
Hawaiian Coot	36

^a Only includes take that was considered caused by project operations.

Following the Hōkūala HCP, Hōkūala (Resort) continued to implement the following minimization measures during this reporting period:

- On-site predator control;
- Comprehensive endangered species awareness training to all Resort employees, with updated modules and retraining for all staff and contractors after the new owners took over;
- Deployment of construction monitors and biological monitors during construction operations to prevent harm to ITL-covered species;
- Education program to inform golfers of the presence of endangered species and implement measures to avoid harm to such species while golfing;
- Program to minimize light-induced attraction of seabirds to Resort facilities by installing appropriate lighting fixtures and implementing appropriate seasonal restrictions and practices; and
- Maintenance of on-site nesting areas.

In FY 2020, the ITL-holder submitted an HCP amendment request to reflect the property’s current name, implementing entity, and financial assurances. In FY 2024, the amendment was still being processed and will be ongoing in FY 2025.

Mitigation Status:

Nēnē, Hawaiian Stilt, Hawaiian Coot, Hawaiian Moorhen, & Hawaiian Duck. Baseline mitigation for waterbirds consists of providing and maintaining approximately 35 acres of lagoons on the property that are an essential habitat for endangered waterbird species, including predator control trapping and wildlife monitoring. Predator control efforts during the FY 2024 reporting period included deploying up to 25 live traps on the property. Live traps were deployed throughout the year and were placed in areas in response to sightings of mammalian predators; traps were checked daily.

Trapping resulted in the removal of 26 cats, 3 pigs, 6 bullfrogs, 67 bullfrog tadpoles, and one dog. Additionally, 1,678 chickens were removed via either live traps or air rifles. Hōkūala also contributed mitigation funding of \$85,000 to DOFAW in May 2012 to be used to conduct predator control and manage Nēnē at a translocation site(s) after the completion of the State’s five-year translocation project ending in 2016.

Newell’s Shearwater, Hawaiian Petrel, & Band-rumped Storm Petrel. The minor amendment in 2013 increasing Newell’s Shearwater take specified contribution of mitigation funding for seabird take in the amount of \$10,000 annually to the National Fish and Wildlife Foundation (NFWF) account, to be held until a Kaua’i island-wide seabird HCP was finalized and approved. On September 15, 2023, \$10,000 will be provided to NFWF to cover the FY 2024 season. In FY 2020, the Kaua’i Seabird HCP was approved.

Relocation of Round-leaved Chaff Flower (*Achyranthes splendens* var. *rotundata*) Habitat Conservation Plan, Kenai Industrial Park, Kapolei, O‘ahu, Hawai‘i. Approved 2014

ITL Licensee: CIRI Land Development Company (In September 2014 CIRI Land Development Company sold the property under the ITL to AKC Leasing Corporation)

Project: Industrial development on a 0.75-acre parcel

ITL Duration: February 10, 2014 – February 9, 2024 (as of end of FY 2024, 10 years (100%) through the permit term)



Achyranthes splendens var. *rotundata*.

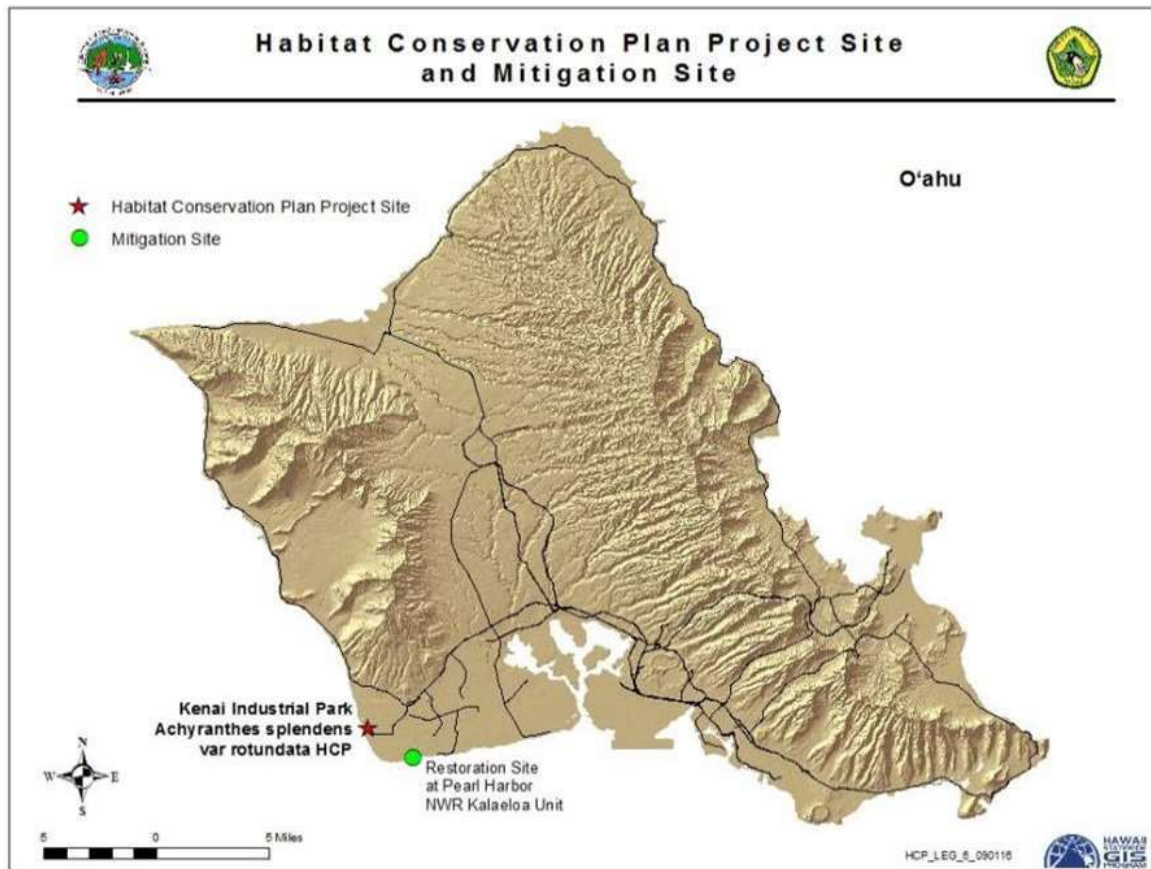


Figure 12. Location of Kenai Industrial Park HCP

Take Authorization Over 10-year Term:

Table 22. Take Authorization for Kenai Industrial Park.

Common Name	Scientific Name	Total Authorized Over ITL Duration
Round-leaved Chaff Flower	<i>Achyranthes splendens</i> var. <i>rotundata</i>	3 individuals and their seed bank

Status of ITL: There was no take of *Achyranthes splendens* var. *rotundata* from the Round Leaved-Chaffed Flower (*Achyranthes splendens* var. *rotundata*) HCP in FY 2024. All plants at the site have been removed under the supervision of the State Botanist. Approximately 23,000 seeds were collected in 2014. Approximately 400 of the seeds collected were used to germinate plants at Hui Kū Maoli Ola native plant nursery; the remainder are in storage at the Lyon Arboretum seed facilities. The Hui Kū Maoli Ola seeds were propagated and used for out-planting at the mitigation site.

On May 18, 2023, DOFAW received a letter from the Law Office of Jennifer A. Lim LLC, on behalf of AKC Leasing Corporation, requesting that the associated bond for this HCP be terminated/released because the licensee considers it has met all the obligations, conditions, and success criteria of the HCP and ITL.

In April 2024, the licensee presented at an Endangered Species Recovery Committee meeting, requesting that the HCP and ITL be closed out. After internal conversations between DOFAW and AKC Leasing, in June 2024, AKC Leasing Corporation submitted a proposal to DOFAW to request that the plants planted at the Kalaeloa Heritage Park be considered part of the HCP contingency measures and thus meet the HCP contingency success criteria. The proposal was accepted, and they submitted a final report on the contingency measures, legally closing out the HCP and the ITL.

Mitigation Status:

Round-leaved Chaff Flower. Per the HCP, seeds were collected from the project site. They were either stored or propagated for future out-planting at the mitigation site located at the Kalaeloa Unit of the Pearl Harbor National Wildlife Refuge.

A total of 159 plants were installed in four plots within the Kalaeloa Unit in November and December 2014. Each planting plot is approximately 12 × 12 meters (39.5 × 39.5 feet). In addition, four individual plants of Round-leaved Chaff Flower were planted outside of Plots 1–4 in November 2014, and this area was designated Plot 5. As of June 29, 2021, 0 out-plants (0% of 159 planted) survived; therefore, the 75% survival by Year 5 outlined in success Criteria 1 would not have been met if it were still valid. Two seedlings reached at least six inches in height in FY 2021. In June 2021, 57 live newly out-planted individuals were included in the count, bringing the total number of individual progeny at the project site to 121.



Plot 1 out-plants on 4/25/17

Success criteria for Year 5 of the monitoring include no fewer than 120 mature plants surviving, no mature kiawe present within the plots, less than 25% cover of herbaceous non-native plants,

and more than 25% cover of native plants. At the end of FY 2021, there were 121 plants at the site (57 recently planted and not yet considered established), native plant cover ranged from 17-50% in the plots, and non-native plant cover ranged from 8-67% in the plots, and no mature kiawe were present in the plots. Weeding took place to ensure all plots met other success criteria.

Reports on the life expectancy of round-leaved chaff vary and range from two to 10 years; however, restoration managers generally agree that this species has a relatively short lifespan, relying on its high reproductive output to perpetuate its populations in the harsh, dry environments in which it is found. For this reason, in FY 2019, the ITL licensee and DOFAW discussed adjusting the survivorship criterion in the HCP to reflect that the species' lifespan often falls below this timespan. In FY 2021, DOFAW finalized the ESRC's approval to omit success Criteria 1 as requested by the permittee.

DOFAW paid a site visit to the Kalaeloa Unit on September 27, 2021, and determined that only 64 *Achyranthes* still occurred there in FY 2022. None of these plants were those originally planted in 2014, and not all plants were mature. Therefore, the mortality rate of adult plants had exceeded the recruitment of new individuals, resulting in fewer remaining *Achyranthes* than were in the founding population. Out-plantings and seedlings had been watered throughout the dry season and were observed still watered during the site visit in early FY 2022. The provenance of the plants grown or out-planted for the project had not been suitably tracked. Therefore, the recruitment of seedlings that survive through the dry season (without any supplemental watering) and seed production by at least 25% of the out-planted lineages still could not be determined in FY 2022. Excluding criterion 1, DOFAW concluded that three out of the six remaining success criteria had not yet been met.

In April of FY 2022, DOFAW met with the licensee to discuss the fate of 100 *Achyranthes* cuttings in the licensee's possession that were taken from the mitigation site. While the licensee prefers to hand these cuttings over to DOFAW, the agency feels that they cannot tend to them and instead suggests the licensee look for an alternative mitigation site at which to plant them. Although the Kalaeloa Heritage Park in Kapolei was discussed as a suitable site no firm decision was made and no further discussion or follow-up occurred between the licensee and DOFAW-HCP by the end of the fiscal year. However, the licensee proceeded to work with Kalaeloa Heritage Park to secure a site for the newly grown plants once achieved maturity. The licensee also applied and obtained a Threatened/Endangered Rare Plant Permit through DOFAW, which became effective as of June 27, 2022.

During FY 2023, on September 12, 2022, the licensee transferred 103 plants from the Native Ecosystem Nursery to the DOFAW Nursery on Waimano, where they were cared for by DOFAW O'ahu Branch staff for around five months. Then, on February 3, 2023, the licensee retrieved those plants and transported them to the Kalaeloa Heritage Park for out-planting. Those plants and any progeny that naturally recruit will remain at that site indefinitely. Pursuant to the DOFAW Permit I5122, the licensee will monitor the plants quarterly until February 2024.

Funding Status: In September of 2014, CIRI Land Development Company (original owner of the property under the ITL) sold the property to AKC Leasing Corporation. AKC Leasing Corporation has acknowledged and understands that ownership of the property is subject to conditions under the approved Incidental Take License Number ITL-18 and the associated HCP for Kenai Industrial Park. AKC Leasing Corporation is required to provide all funding necessary

to fulfill obligations outlined in the approved HCP, including funding assurances. In FY 2021 and 2022, AKC Leasing Corporation used its procurement processes to fulfill HCP obligations.

Kaua'i Seabird Habitat Conservation Plan, Kaua'i Island, Hawai'i. Approved 2020.

ITL Licensees:

- Alexander & Baldwin, Inc.
- County of Kaua'i
- Hawai'i Department of Transportation
- Royal Sonesta Resort (Essex House Condominium Corporation)
- Kaua'i Coffee Company, LLC
- NCL (Bahamas) Ltd.
- 1Hotel Hanalei (XI Kaua'i PV Hotel) (formerly known as Princeville Resort)
- Sheraton Kaua'i (Kauai Blue, Inc)



Newell's Shearwater (Puffinus auricularis newelli)

Project: The Kaua'i Seabird Habitat Conservation Plan (KSHCP) is an Island wide conservation plan approved in FY 2020 and addresses artificial nighttime lighting threats and light attraction on covered seabirds and the Hawaiian Green Sea Turtle (*Chelonia mydas*).

ITL Duration: June 12, 2020 – June 12, 2050

Take Authorization Over 30-year Term:

Table 23. Take Authorization for All Participating Entities.

Participant	Authorized Take over Permit Term			
	(lethal/non-lethal) fledglings			
	Newell's Shearwater ('A'o)	Hawaiian Petrel ('Ua'u)	Band-rumped Storm Petrel ('Akē'akē)	Green Sea Turtle (Honu)
Kaua'i Marriott Resort	33 / 22	1 / 1	1 / 1	0
Kaua'i Coffee	34 / 27	-	-	0
Sheraton Kaua'i	81 / 64	1 / 1	3 / 3	0
NCL	30 / 30	6 / 6	6 / 6	0
Princeville Resort	125 / 476	6 / 6	1 / 1	0
County of Kaua'i	276 / 217	17 / 4	4 / 0	0
Hawai'i Dept. of Transportation	103 / 144	5 / 12	1 / 2	0
Alexander & Baldwin	104 / 80	3 / 3	1 / 1	0

Status of ITL: The Kaua'i Seabird Habitat Conservation Plan (KSHCP) was approved in FY 2020 and addresses artificial nighttime lighting threats and light attraction on covered seabirds and the Hawaiian Green Sea Turtle (*Chelonia mydas*).

Table 24. Calculated seabirds taken for all Participants in FY 2023

Property or Facility	Newell’s Shearwater		Hawaiian Petrel		Band-rumped Storm Petrel	
	Lethal	Non-lethal	Lethal	Non-lethal	Lethal	Non-lethal
A&B- Multiple	8.72	5.28	0	0	0	0
Kauai County-Multiple	1.12	0.88	0	0	0	0
HDOT-Lihue Airport	2.24	1.76	0	0	0	0
HDOT-Nawiliwili Harbor	1.85	7.04	0	0	0	0
HDOT-Port Allen	0	0	0	0	0	0
Kauai Coffee	0	0	0	0	0	
Royal Sonesta	6.72	5.28	0	0	0	0
NCL	1.12	0.88	1.12	0.88	0	0
Princeville Resort Kaua’i	4.39	16.72	0.231	0.88	0	0
Sheraton Kauai Resort	6.24	1.76	0	0	0	0
Total FY 2023Take	32.40	39.6	1.351	1.76	0.12	0.88
Take prior to 2023	41.91	31.4	1.1	0	0	0
Cumulative Participant Fledgling Take Since May 2020	74.31	71	2.451	1.76	0.12	0.88
Maximum Anticipated Total Fledgling Annual Take*	30	45	2	2	1	1
Maximum Anticipated Total Fledgling 30-year Take*	900	1350	60	60	30	30

In total, 53 Newell’s shearwaters and one Hawaiian petrel were found on KSHCP participant-covered properties during the 2023 seabird fallout season. This is a significant increase over the 28 Newell’s shearwaters and one Band-rumped storm petrel documented in 2022. In 2023, fifty (50) Newell’s shearwaters were released alive, two were found dead, and two were euthanized in SOS care. The one Hawaiian petrel was released alive.

Facility changes: There were no changes in ownership during the 2023 seabird season; however, one A&B facility was sold before the 2023 season and is no longer included in the KSHCP.

Minimization status: Overall, the participants in the KSHCP ensured that lighting at their facilities was reduced and modified in compliance with the guidelines outlined in the KSHCP. In some cases, lights were completely turned off at the properties for the duration of the season. For tourism-based properties (1 Hotel Hanalei Bay and NCL), lighting was significantly decreased due to closed facilities and greatly reduced occupancy due to the COVID-19 pandemic.

Only 25/47 of those properties conducted predator control across all Participants, resulting in significant gaps in coverage of predator control. Of the 25 properties that did conduct predator control, 24 were deemed adequate based on meeting the minimum number of trap nights and trap placement, which is an improvement from only 12 done in 2022.

Take Monitoring: Each Participant’s ITP and ITL requires that the participant “calculate their annual lethal and non-lethal take using the methodology described in the KSHCP and with the discovery rate within their approved Participant Inclusion Plan.” This summary of take monitoring summarizes Participants’ covered seabird monitoring and presents tables comparing Participants’ actual rates of take to requested amounts. In 2021, a Searcher Efficiency Trial was conducted at multiple participant facilities to determine the efficacy of searching for downed

seabirds. Sheraton and Sonesta, with a proposed 50% discovery rate, were tested again in 2022. The searcher efficiency rate for the Royal Sonesta in 2022 was 40% compared to 17% in 2021. The searcher efficiency rate of Sheraton Kauai Resort in 2022 was 65% in contract to 5% in 2021. 1Hotel Hanalei, unavailable for testing due to remodeling, will be evaluated in the upcoming seabird season.

Mitigation Status: The Kaua'i Seabird Habitat Conservation Plan (KSHCP) was developed and finalized in 2020 to address light attraction impacts on the listed seabirds on the island of Kaua'i. The KSHCP also addresses the effects of lights on the Central North Pacific distinct population segment (DPS) of the green sea turtle (*Chelonia mydas*, Hawaiian name: honu, hereafter honu).

Hawaiian Petrel, Newell's Shearwater, and band-rumped Storm Petrel. The KSHCP funding design features a cost-sharing structure. The total costs of the KSHCP, including implementation, mitigation, monitoring, adaptive management as needed, and reporting, are shared amongst the permit recipients according to the relative amounts of take authorized.

Under the KSHCP, the participants will mitigate their take, in part, by enhancing, protecting, and managing suitable seabird breeding habitats on Kaua'i to facilitate the successful production of covered seabirds. This will be accomplished through 1) the construction and maintenance of a predator-proof enclosure installation, 2) the long-term maintenance of social attraction equipment within the enclosure, 3) the eradication of predators within the enclosure, and the implementation of long-term predator control at the site.

The KSHCP identified the Kahuama'a Flats within the Kōke'e State Park as a suitable mitigation/social attraction site location. The Kahuama'a seabird preserve site was selected during the HCP process to create a fenced, predator-free seabird preserve in the northwest region of Kaua'i. Owing to a large landslide at the initially proposed site, an alternative preserve site was selected 102 meters away from the original site, resulting in changes in circumstances that were initiated almost immediately upon the adoption of the HCP. The new site selected provides a comparable area and habitat to the initially proposed site. In FY 2021, construction of the 9.2-acre seabird reserve was completed. Biological monitoring of forest birds, seabirds, and habitat at the preserve site was completed prior to the initiation of construction in FY 2020 and continued into FY 2021; all required surveys were completed during that time to provide an inventory of the flora and fauna present in the area. Intensive burrow searching indicated that seabirds do not appear to nest in the immediate project area. However, based on high detection rates during auditory surveys, they were transiting the area daily during the breeding season. With the deployment of social attraction infrastructure and the installation of 100 artificial burrows in 2021, they are expected to readily find the mitigation site.

The social attraction speaker system was installed before the 2022 seabird season and plays a mix of Newell's Shearwater calls from dusk until dawn to mimic natural attendance patterns at the colony during the seabird breeding season. Auditory surveys began in mid-May 2023 and were conducted every two weeks, with two surveys per survey day until August. Newell's Shearwaters were detected in relatively high frequency during every survey conducted and are regularly prospecting within the area.



Figure 13. Photographs of completed artificial nest boxes installed at Kahuama'a Seabird Preserve

SUMMARY OF SAFE HARBOR AGREEMENTS AND ASSOCIATED INCIDENTAL TAKE LICENSES

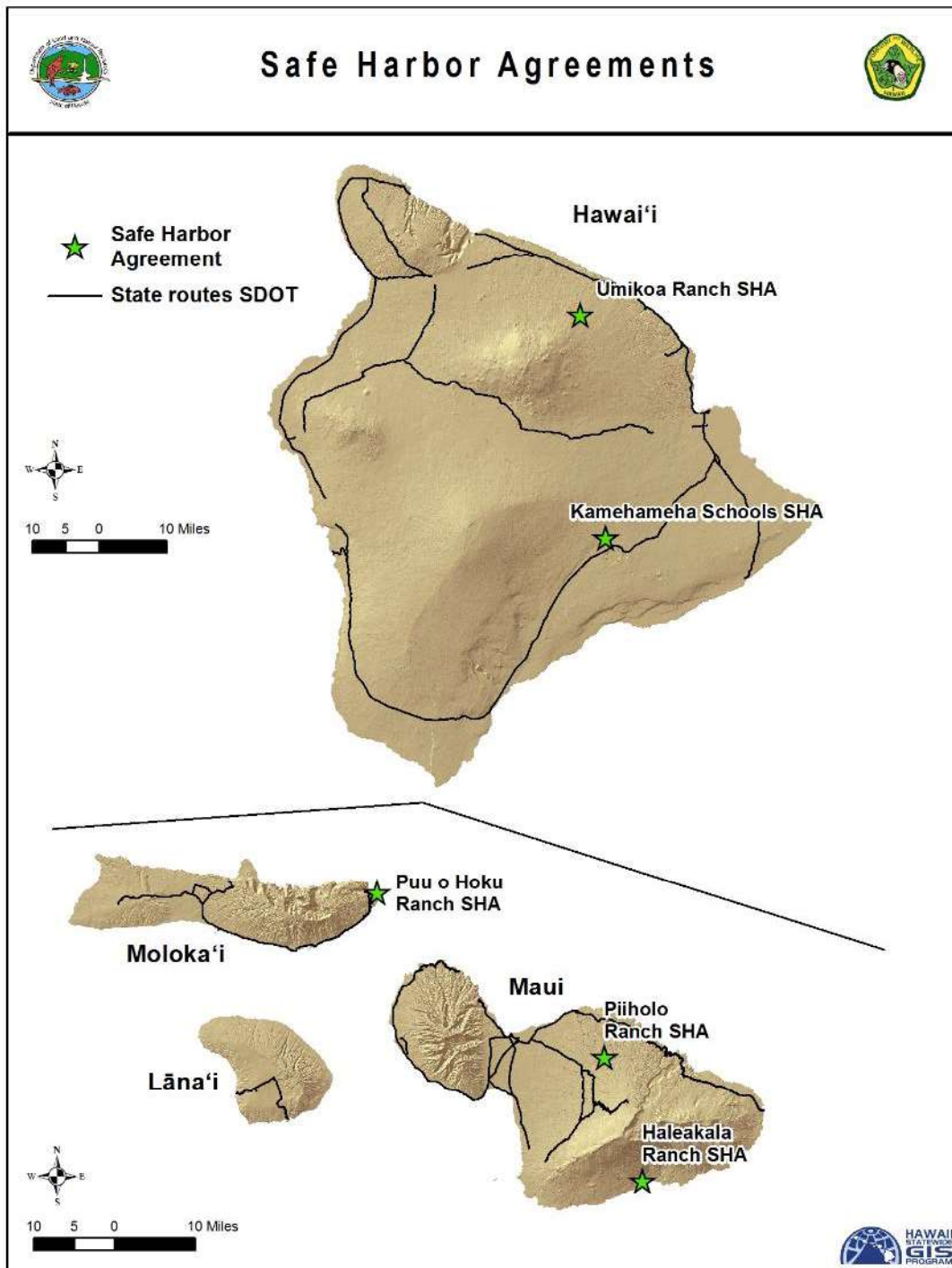


Figure 1. Location of Safe Harbor Agreements

Safe Harbor Agreement for Pu‘u o Hōkū Ranch, Moloka‘i.

ITL Licensee: Pu‘u o Hōkū Ranch, Limited.

Project: Reintroduce Nēnē (*Branta sandvicensis*) to Pu‘u o Hōkū Ranch, Moloka‘i.

ITL and SHA Duration: ITL has no specific expiration and is valid unless rescinded; SHA period was from September 4, 2001, to September 3, 2008.

Take Authorization: Incidental take of Nēnē on lands owned or otherwise controlled by Pu‘u o Hōkū Ranch, Limited.



Nēnē, official bird of the State of Hawai‘i, resting in the foreground.

Baseline Condition: At the time of agreement execution, there was no wild Nēnē on Moloka‘i. Therefore, the baseline condition is zero wild Nēnē on Pu‘u o Hōkū Ranch property. The SHA allowed for the reintroduction of Nēnē on Pu‘u o Hōkū Ranch property, the construction of a release pen, the provision of habitat for Nēnē grazing and breeding, and control of predators in the release pen and breeding areas.

Status of ITL and SHA:

Molokai DOFAW staff continues to monitor nēnē (Hawaiian Goose) population at Pu‘u o Hoku Ranch. This past year, only four (4) adult individuals were regularly observed; the population estimate for Moloka‘i island is four (4) adult nēnē.

No nests were found in the pen; however, one (1) gosling with two adults was observed outside of the pen on January 29, 2024. The gosling was never resighted during this period, and no banding was conducted during this period.

Maintenance at the open-top release pen includes monthly checks and patch repairs, regular mowing and weed control for habitat maintenance, and weekly checks of waterlines and troughs. Ranch personnel mowed an additional ten-yard perimeter around the pen.

A half-acre (0.5) of alien vegetation (lantana and haole koa) was removed from the pen. DOFAW staff removed one (1) cat and thirty-four (34) mongooses from the pen area from fourteen live cage traps. In addition, Ranch staff removed five (5) cats and ten (10) mongooses from the pen area.

Table 1. Observations of Nēnē translocated to Pu‘u o Hōkū Ranch

Year	No. of Birds Translocated	Total Birds Translocated	No. of Known Fatalities	No. of Birds Sighted	Percentage (%) of Translocated Birds Sighted (excluding known fatalities)
2024	0	74	0	0	0
2023	0	74	0	0	0
2022	0	74	0	0	0
2021	0	74	0	0	0
2020	0	74	0	0	0
2019	0	74	0	1	2
2018	0	74	0	1	2
2017	0	74	0	1	2
2016	0	74	0	2	3
2015	0	74	0	4	5
2014	0	74	0	6	9
2013	0	74	0	6	9
2012	0	74	0	6	9
2011	0	74	0	7	11
2010	0	74	0	8	13
2009	0	74	0	18	28
2008	0	74	1	33	52
2007	0	74	0	38	58
2006	0	74	5	29	45
2005	11	74	2	47	67
2004	8	63	1	42	69
2003	41	55	1	54	100
2002	14	11	0	14	100

Programmatic Safe Harbor Agreement for Nēnē, Moloka‘i.

ITL Licensee: DOFAW to issue Certificates of Inclusion under authority of §195D-22, HRS, to landowners signing Cooperative Agreements.

Project: Encourage private landowner management activities to benefit Nēnē and provide regulatory assurances if Nēnē occupies or breeds on their property.

ITL Duration: April 7, 2003 – April 6, 2053.

Take Authorization: Any Nēnē or Nēnē habitat above Baseline Conditions, as defined in respective landowner Cooperative Agreements.

Baseline Condition: This will be set in each landowner’s Cooperative Agreement.

Status of ITL and SHA: During the reporting period and to date, no landowners have been enrolled under this SHA; discussions with interested landowners will continue.

Safe Harbor Agreement for the Introduction of Nēnē to Pi‘iholo Ranch, Maui.

ITL Licensee: Pi‘iholo Ranch, LLC.

Project: Establish a Nēnē population on Pi‘iholo Ranch.

ITL Duration: The ITL is valid for 50 years from September 21, 2004, to September 20, 2054; the SHA is currently expired. The original period was from September 21, 2004, to September 20, 2014.

Take Authorization: Incidental take of Nēnē on lands owned or controlled by Pi‘iholo Ranch, LLC.



Pi‘iholo Ranch on Maui.

Baseline Condition: Following Nēnē reintroduction efforts on Maui at Haleakalā National Park in 1962, DOFAW began establishing a population in west Maui through a reintroduction program at Hana‘ula in 1995. However, before the development of the SHA, there had been no known nēnē sightings at Pi‘iholo Ranch premises by DOFAW staff or Ranch personnel. The baseline condition, therefore, was determined to be zero. Under the SHA Pi‘iholo Ranch was to maintain or improve approximately 600 acres of Nēnē habitat for 10 years.

Status of ITL and SHA: There were 13 nēnē found dead, one adult, and 12 goslings at Pi‘iholo Ranch this fiscal year. The activities under the SHA were the construction of a nēnē release pen, predator control activities around nēnē nesting and breeding sites, and out-planting native plant species known to be nēnē food sources. There were 12 nests in FY 2024, all located in the open-top release pen. Of the 12 nests, only two produced goslings, one fledgling each; ten failed. Two goslings fledged the open-top release pen and were banded. The adult mortality was one female found dead on her nest, assumed to be caused by aggression from a nearby breeding pair. Eight (8) gosling carcasses were found within the pen after a winter storm, and four goslings were never found.

A total of six (6) birds were banded this past season: one (1) unbanded adult, three (3) adults replaced bands, and two (2) fledglings. Nēnē monitoring recorded 53 banded birds and four unbanded pairs on the Ranch in FY 2024. An island-wide annual nēnē survey was not conducted this fiscal year. Due to staffing vacancies, maintenance activity was limited.

The entire perimeter of the fence was checked monthly, and it was fully maintained twice by filling holes under the fence or patching holes in the wire mesh. The pen's interior was mowed eight times, and the fence line was weed-whacked five times throughout the year. One acre of devil weed was hand-pulled from the pen. The Ranch staff fixed the waterline to the pen once this year. Predator control efforts from 16 traps employed in FY 2024 resulted in 10 mongooses removed around the open-top release pen this past season.

Table 2 provides survey data for the original 48 birds released to the Ranch. The percentage of the original 48 re-sighted birds is a factor of the survey effort. It does not account for any unknown mortality or emigration from the Ranch and may not necessarily be a measure of release success.

Table 2. Observations of Nēnē translocated to Pi‘iholo Ranch

Year	No. of Birds Translocated	Total Birds Translocated	No. of Known Fatalities	No. of Translocated Birds Sighted	Percentage (%) of Translocated Birds Sighted (excluding known fatalities)
2024	0	48	0	1	2.1
2023	0	48	0	0	0
2022	0	48	0	0	0
2021	0	48	0	0	0
2020	0	48	0	1	2
2019	0	48	0	3	6
2018	0	48	0	3	6
2017	0	48	0	4	9
2016	0	48	0	9	20
2015	0	48	0	10	23
2014	0	48	0	10	23
2013	0	48	0	11	25
2012	0	48	0	11	25
2011	0	48	1	16	36
2010	0	48	0	23	51
2009	0	48	1	26	58
2008	10	48	0	30	65
2007	25	38	2	26	72
2006	8	13	0	12	92
2005	5	5	0	5	100

Safe Harbor Agreement for the Reintroduction of Nēnē to Haleakalā Ranch, Maui.

ITL Licensee: Haleakalā Ranch Company.

Project: Establish a Nēnē population on Haleakalā Ranch, Maui.

ITL Duration: The ITL is valid for 50 years from May 22, 2012, to May 21, 2062; the SHA has been finalized as of August 2019.

Take Authorization: Incidental take of nēnē on lands owned or controlled by Haleakalā Ranch.

Baseline Condition: There had been no nēnē sightings at Haleakalā Ranch by DOFAW staff or ranch personnel before the execution of the SHA. Therefore, the baseline condition was determined to be zero.

Status of ITL and SHA: There were seven nēnē mortalities at Haleakalā Ranch (all goslings) reported this fiscal year. Aerial predators or possible mongoose predated five goslings; no carcasses were found. Two goslings died of natural causes, and the bodies were salvaged and placed in the DOFAW freezer. DOFAW, in cooperation with Haleakalā Ranch, has constructed a two-acre nēnē release pen and conducts monthly nēnē monitoring surveys, tracks nesting success and performs banding. Management of the pen was taken over by KWP I and KWP II ITL permit holders, and maintenance was conducted year-round by the contractor AES.

Nine nests were found in FY 2024, all located inside the open-top release pen. Of the nine nests, four were abandoned, and five were successful. Thirteen eggs hatched, and six goslings fledged. A total of fourteen (14) individuals were banded at the Haleakala Ranch pen this past season: eight (8) adults and six (6) fledglings.

Approximately 1 acre of alien vegetation, including lantana, strawberry guava, *Bocconia*, fireweed, and bur, was mechanically removed. Predator control was conducted by AES, which maintained 16 live cage traps, 10 DOC200s, and five A24s. Of these traps, 20 mongooses and two rats were removed. Multiple observations of pueo in person and on game cameras were noted throughout the nesting season. No aerial predator control was conducted.

53 birds were translocated to Haleakalā Ranch between 2011 and 2016, and three were translocated in FY 2023. All three birds released in FY 2023 had injuries and were released in the pen for protection. Table 3 provides survey data for the 56 translocated birds. The percentage of the original 53 birds re-sighted is a factor of the survey effort. It does not account for any unknown mortality or emigration from the Ranch and may not necessarily be a measure of release success.

Table 3. Observations of nēnē translocated to Haleakala Ranch

Year	No. of Birds Translocated	Total Birds Translocated	No. of Known Fatalities	No. of Birds Sighted	Percentage (%) of Translocated Birds Sighted (excluding known fatalities)
2024	0	56	0	3	5.4
2023	3	56	0	Pending	Pending
2022	0	53	0	2	4
2021	0	53	1	8	15
2020	0	53	0	10	19
2019	0	53	0	10	19
2018	0	53	0	13	25
2017	0	53	0	19	40
2016	8	53	0	28	60
2015	8	45	1	25	64
2014	0	37	2	23	84
2013	7	37	1	31	91
2012	20	30	2	30	100
2011	10	10	0	10	100

Safe Harbor Agreement for the Koloa Maoli or Hawaiian Duck (Anas wyvilliana) and the Nēnē or Hawaiian Goose (Branta sandvicensis) on ‘Umikoa Ranch, Hawai‘i Island.

ITL Licensee: Umikoa Ranch.

Project: Establish a Koloa and Nēnē population on privately owned lands of ‘Umikoa Ranch in the Hamakua District of Hawai‘i Island.



Koloa Maoli or Hawaiian Duck, endemic to the Hawaiian Islands.

ITL Duration: The ITL was valid from December 5, 2001, to December 4, 2100; the SHA period went from December 5, 2001, to December 4, 2021.

Take Authorization: Incidental take of nēnē and Koloa, including their progeny, on lands owned or otherwise controlled by ‘Umikoa Ranch, provided that such take is above the established baseline conditions.

Baseline Condition: The Baseline Conditions for Koloa and nēnē were determined from monthly biological surveys conducted between January and October 2000. During this time, there were five existing ponds ranging from 0.12 to 0.30 acres, providing approximately one acre of open water habitat and five acres of adjacent upland habitat. Surveys indicated that a single pair of wild Koloa frequented the ‘Umikoa wetland area. Therefore, the baseline for Koloa was determined to be two individuals, one acre of open water habitat, and five acres of adjacent upland habitat. The baseline for Nēnē was determined to be zero.

Status of ITL: The ITL and Safe Harbor agreement expired in 2021.

In FY 2021, USFWS terminated the Federal ITP for Umikoa Ranch, and DOFAW rescinded the ranch’s ITL due to a lack of reporting and communication. No waterbird surveys were conducted in FY 2022, FY 2023, or FY 2024.

Safe Harbor Agreement for Kamehameha Schools, Keauhou and Kīlauea Forest Lands, Hawai‘i Island

ITL Licensee: Trustees of the Estate of Bernice P. Bishop, DBA Kamehameha Schools.

Project: Restoration and enhancement of habitat for native plants and animals.

ITL Duration: The ITL is valid from June 22, 2018, to June 21, 2068.



Example species in the Kamehameha Schools SHA.

Take Authorization and Baseline Condition:

Table 4. Take Authorization for Kamehameha Schools SHA

<u>Common Name</u>	<u>Scientific Name</u>	<u>Incidental Take Permitted No. of Individuals or Habitat</u>	<u>Baseline Individuals or Habitat</u>
Forest Birds: ‘Akiapōlā‘au, Hawai‘i Creeper Hawai‘i ‘Ākepa ‘I‘iwi	<i>Hemignathus wilsoni</i> <i>Loxops mana</i> <i>Loxops coccineus</i> <i>Vestiaria coccinea</i>	Any habitat for the four forest birds above the baseline identified on the Enrolled Property	Approximately 4,162 acres of habitat in Forest Bird Stratum 1 on the Enrolled Property
Hawaiian Hawk, ‘Io	<i>Buteo solitarius</i>	Any habitat for the ‘Io above the baseline identified on the Enrolled Property	Approximately 18,517 acres of habitat on the Enrolled Property
Hawaiian Crow, ‘Alalā	<i>Corvus hawaiiensis</i>	Any individual on or at the Enrolled Property	Zero Individuals
Hawaiian Goose, Nēnē	<i>Branta sandvicensis</i>	Any individual on or at the Enrolled Property	Zero Individuals
Hawaiian Hoary Bat, ‘Ōpe‘ape‘a	<i>Lasiurus cinereus semotus</i>	Any habitat for the ‘Ōpe‘ape‘a above the baseline identified on the Enrolled Property	Approximately 18,517 acres of habitat on the Enrolled Property
None	<i>Asplenium peruvianum var. insulare</i>	Any individual on or at the Enrolled Property	128 Individuals
‘Ōhā wai	<i>Clermontia lindseyana</i>	Any individual above the baseline on the Enrolled Property	24 Individuals
Hāhā	<i>Cyanea shipmanii</i>	Any individual above the baseline on the Enrolled Property	463 Individuals
Hāhā	<i>Cyanea stictophylla</i>	Any individual above the baseline on the Enrolled Property	104 Individuals
Kīponapona	<i>Phyllostegia racemosa</i>	Any individual above the baseline on the Enrolled Property	4 Individuals
None	<i>Phyllostegia velutina</i>	Any individual above the baseline on the Enrolled Property	38 Individuals
None	<i>Plantago hawaiiensis</i>	Any individual above the baseline on the Enrolled Property	1 Individual
None	<i>Vicia menziesii</i>	Any individual above the baseline on the Enrolled Property	27 Individuals

<u>Common Name</u>	<u>Scientific Name</u>	<u>Incidental Take Permitted No. of Individuals or Habitat</u>	<u>Baseline Individuals or Habitat</u>
‘Āhinahina	<i>Argyroxiphium kauens</i>	Any individual above the baseline on the Enrolled Property	Zero Individuals
‘Ōha	<i>Clermontia peleana</i>	Any individual above the baseline on the Enrolled Property	Zero Individuals
‘Akū	<i>Cyanea tritomantha</i>	Any individual above the baseline on the Enrolled Property	Zero Individuals
Ha‘iwale	<i>Cyrtandra giffardii</i>	Any individual above the baseline on the Enrolled Property	Zero Individuals
Ha‘iwale	<i>Cyrtandra tintinnabula</i>	Any individual above the baseline on the Enrolled Property	Zero Individuals
Hau kuahiwi	<i>Hibiscadelphus giffardianus</i>	Any individual above the baseline on the Enrolled Property	Zero Individuals
‘Ohe	<i>Joinvillea ascendens</i>	Any individual above the baseline on the Enrolled Property	Zero Individuals
Alani	<i>Melicope zahlbruckneri</i>	Any individual above the baseline on the Enrolled Property	Zero Individuals
None	<i>Neraudia ovata</i>	Any individual above the baseline on the Enrolled Property	Zero Individuals
‘Aiea	<i>Nothocestrum breviflorum</i>	Any individual above the baseline on the Enrolled Property	Zero Individuals
None	<i>Phyllostegia floribunda</i>	Any individual above the baseline on the Enrolled Property	Zero Individuals
None	<i>Phyllostegia parviflora</i>	Any individual above the baseline on the Enrolled Property	Zero Individuals
Makou	<i>Ranunculus hawaiiensis</i>	Any individual above the baseline on the Enrolled Property	Zero Individuals
‘Ānunu	<i>Sicyos alba</i>	Any individual above the baseline on the Enrolled Property	Zero Individuals
‘Ānunu	<i>Sicyos macrophyllus</i>	Any individual above the baseline on the Enrolled Property	Zero Individuals
None	<i>Silene hawaiiensis</i>	Any individual above the baseline on the Enrolled Property	Zero Individuals
None	<i>Stenogyne angustifolia</i>	Any individual above the baseline on the Enrolled Property	Zero Individuals

Status of ITL: Kamehameha Schools (KS first presented a baseline revision request to wildlife agency staff during a meeting on May 1, 2020, and submitted a draft written request on June 10, 2021. In FY22, DOFAW staff notified KS that as the written report on the comprehensive survey of out-plants had not been submitted to DOFAW by the 2nd anniversary of the agreement (June 22, 2020), the Attorney General had determined that DOFAW would be unable to follow the specific baseline revision process described in Section 5 of the Agreement. KS will, therefore, be proposing an amendment to the Agreement. The amendment will include: 1. Revision of covered plant species baselines to account for out-plant mortality during the first two years of the agreement. 2. Inclusion of two new covered plant species: *Exocarpus menziesii* and *Sanicula sandwicensis*. This proposed amendment was revisited at the end of FY 2024, and DOFAW and USFWS met with Kamehameha Schools to discuss the details and next steps. DOFAW is awaiting a draft from Kamehameha Schools. The amendment will not include a revision of the baseline for ‘io and ‘ōpe‘ape‘a habitat due to the 2018 wildfire. While this was a *force*

majeure event, KS silviculture and restoration activities in this area are showing success, and the wildfire is not expected to have a long-term impact on the ‘io and ‘ōpe‘ape‘a habitat.

At this time, DOFAW HCP is still awaiting this FY 2024 SHA annual report from Kamehameha Schools.

In FY23, 12,057 native plants, including 7,616 koa seedlings, were planted on the Enrolled Property for 74,484 native plants of 38 species planted over the first five years of the Agreement. All restoration out-planting occurred outside of Forest Bird Stratum 1 in FY23. Planting areas were concentrated in the lower portions of the Enrolled Property. Out-planting was conducted by collaborators and vendors and included 14 staff plantings and 20 educational group plantings for school and community members. 544 volunteers helped with these reforestation efforts and learned about native plants, forest ecology, and the importance of watershed restoration. In FY23, silviculture activities did not occur within Forest Bird Stratum 1. Outside of Forest Bird Stratum 1, 59 acres of new koa stands were planted, for 417 acres of koa planted over the first five years of the Agreement. Koa was planted at a spacing of 20’ x 20’ (density of 108 trees per acre) to reduce the need for thinning in the future. Other stand improvement activities included singling of 162 acres within stands planted in FY21 and FY22 to remove competitive branches at the top of each koa seedling, pruning of lower branches from the base to 5-8 ft in height across 131 acres within stands planted in FY20 and FY21 to improve stem form, as well as fertilization of 221 acres of koa planted in FY21, FY22, and FY23.

In FY23, all Keauhou fencelines (approximately 39.6 miles) were inspected at least semi-annually, with most fences inspected 3-4 times yearly. Minor repairs and routine maintenance were conducted as needed, such as adding pins or skirts and repairing damage from treefalls. Additional fence work to prevent further ingress into Keauhou included the replacement of the Pu‘u Lālā‘au makai fenceline, which separates the Pu‘u Lālā‘au unit from the area in lower Keauhou where pig ingress is occurring. The current 9-49” wire is deteriorating and being replaced with the smaller mesh 13-48” hog wire, the standard size used to prevent the potential ingress of small piglets. About 1,150 m of fence was replaced in FY23.

Ungulate presence within fenced conservation management units was monitored. In upper Keauhou, no fresh or intermediate ungulate sign was observed along annually monitored transects that traverse forested kipukas for the eighth consecutive year. Pig ingress first observed in Lower Keauhou in FY20, continues to be a problem. 125 pigs were removed from this area in FY23, with an estimated 150 remaining. A strategy has been developed to return this unit to near-zero levels within two years (by the end of FY25), and additional ungulate management has been contracted. This strategy will include additional corral traps, regular hunts, and increased fence inspection/maintenance. In addition, TMA has secured State CIP funding through DOFAW to install 4,600 m of new fencing along Powerline Road, which will split the large Keauhou fenced unit into two smaller units.

The wildfire in August 2018 consumed 3,739 acres, including 649 acres of the enrolled property, in addition to the much larger area in the adjacent Volcanoes National Park. In response to the 2018 wildfire, an 18,000-foot firebreak was installed along the property boundary with National Park in FY 2019. In FY23, KS inspected and maintained all water sources (4 catchments, 12 tanks, and three reservoirs), access routes (27.5 miles of primary and 3.5 miles of secondary roads), and the fire break installed in FY19.

In FY23, KS suppressed weed species across 2,396 acres on the Enrolled Property (see Figure 8). Suppression activities occurred on 2,182 acres within Forest Bird Stratum 1 and 1,065 acres on the remainder of the Enrolled Property. In addition to the four priority weed species, targets of suppression efforts included blackberry (*Rubus argutus*), banana poka (*Passiflora tarminiana*), and Japanese anemone (*Anemone hupehensis* var. *japonica*). Overall, survey efforts from FY23 indicate that populations of the four priority weed species remain well below 10% cover on the Enrolled Property within conservation fences. KS assessed 3,254 acres for target weed species via ground surveys. In addition to prioritizing areas for weed control, these assessments located a population of suspected Andean raspberry (*Rubus glaucus*) and a single Australian tree fern (*Cyathea cooperi*) in lower Keauhou along the Palakea fenceline. This was the first time Andean raspberry was detected at Keauhou. This species is naturalized on Maui and was previously observed near Wright Road.

Die-off from Rapid ‘Ōhi‘a Death (ROD) has been observed in portions of lower Keauhou in areas outside conservation fences since June 2017. In FY23, the number of trees appearing symptomatic increased across lower Keauhou. TMA and BIISC crews sampled suspect ROD trees in Lower Keauhou in July 2022, October 2022, January 2023, and March 2023. Nine to eleven trees were sampled each time, but only one of the 35 trees tested positive for ROD. A pathologist from the U.S. Forest Service joined TMA and BIISC staff in April to further investigate the dieback and sampled five recently dead trees. Results are pending.

Forest bird surveys were conducted in late February 2023. Due to inclement weather (heavy rain), two additional days in March and April were needed to finish the survey. 159 stations along seven transects were surveyed primarily within Forest Bird Stratum 1; 150 stations were located on KS lands, and nine were on adjacent State lands. Even with the added survey days, five stations (four on KS lands and one on State land) could not be surveyed. All four species of forest birds covered by the Agreement were detected. Survey results are shown in Table 5.

Due to the high mortality of ‘Alalā released at Pu‘u Maka‘ala Natural Area Reserve, the AWG recaptured the remaining released birds in the fall of 2020 and brought them back into captivity to reassess the release site and causes of mortality. Currently, there are no released birds in the wild.

Table 5. Forest Bird survey results for the Kamehameha SHA in FY 2023

Common Name	Scientific Name	# Detected	Stations Occupied
‘I‘iwi	<i>Drepanis coccinea</i>	2465	104/159
‘Akiapōlā‘au	<i>Hemiganthus wilsoni</i>	4925	31/159
‘Ākepa	<i>Loxops coccineus</i>	12	9/159
‘Alawī	<i>Loxops mana</i>	4129	25/159
‘Io	<i>Buteo solitarius</i>	01	0/159

Baseline monitoring for ‘Io involves canopy assessment every ten years and species occupancy every five years. Occupancy is determined via circular variable plot count methodology and will be conducted by the Agencies or associated cooperating parties agreeable to KS. Canopy assessment will be completed by FY 28, and occupancy surveys were completed in FY23. TMA, DOFAW, and KBCC staff conducted an ‘io species occupancy survey in late June 2023, following the methods used in the Safe Harbor baseline surveys. Ten stations were surveyed by

playing recordings of adult ‘io from a game caller. One ‘io was recorded at a survey station (station 2) during the survey on June 23, 2023. An unbanded adult flew in during playback, perched near the vehicle and speaker, and began preening. Playback was halted when the bird flew in. Based on its size, observers suspected the individual to be male but were not confident. It was also suspected that this was the same bird previously observed between stations 1 and 2 based on timing and the direction of the hawk’s approach and departure. However, it is possible that one or both were a different individual.

Surveys during Nēnē breeding season (October-March) are conducted by DOFAW staff annually and provide information on population estimates, nesting success, and fledging success. DOFAW staff conducted Nēnē activity and nesting surveys once a month during Nēnē breeding season. Visual ground surveys were conducted at each site monthly from October 2022 through March 2023. A mean of 6.7 Nēnē were observed during monthly surveys (range = 0 – 13) in FY 2023 in the Keauhou, Ka‘ū, portion of the enrolled property and a mean of 1.86 (range = 0 – 7) at the ‘Ōhi‘a Ranch portion. Nēnē pairs were observed from October to February, with four pairs in October and December. Two Downed Wildlife forms were submitted to the wildlife agencies. On October 4, 2022, a nēnē carcass was discovered approximately 20 meters northeast of the Nēnē Cabin Reservoir, beneath pukiawe shrubs. The carcass was completely desiccated and likely died several months earlier. On February 14, 2023, an abandoned nēnē nest containing one whole egg and several eggshell shards was discovered approximately 35 meters west of the Nēnē Cabin Reservoir.

Baseline monitoring for ‘Ōpe‘ape‘a involves canopy assessment every ten years and species occupancy every five years. Occupancy is determined via acoustic monitoring and will be conducted by the Agencies or associated cooperating parties agreeable to KS. Canopy assessment will be completed by FY28 and occupancy surveys were scheduled to occur in FY23. As the agencies were not able to conduct ‘ōpe‘ape‘a occupancy surveys in FY23, KS will be conducting occupancy surveys in FY24 in association with TMA.

Baseline monitoring for threatened and endangered plant species follows protocols established or approved by the Plant Extinction Prevention Program (PEPP). Going forward, KS will target out-plantings for both species and additional surveys for *P. hawaiiensis*. These surveys also resulted in the detection of two new endangered species (*Exocarpus menziesii* and *Sanicula sandwicensis*) that were not previously known from the Enrolled Property and one rare but unlisted species (*Phyllostegia macrophylla*), which is currently the only extant wild individual known. In FY23, KS secured a State Rare Plant Permit, allowing KS to survey, monitor, collect, and implement threat controls to rare plant populations on KS lands in collaboration with DOFAW. Under this permit, KS and DOFAW collected cuttings from seven additional *Vicia menziesii* founders. Cuttings from 12 of 20 *Vicia* individuals have been taken and deposited at the Volcano Rare Plant Facility (VRPF). As of July 2023, material representing six founders has successfully rooted, some with multiple replicates. Additional *Vicia* cuttings are also on the facility’s mist bench; additional founder representation is expected. Cuttings from the remaining eight founders were not taken due to small plant size and limited plant material. Continued and increased monitoring and additional collections are planned for *Vicia* in FY 24. Also of note is that the first *Vicia* seeds were collected and accessed. As of April 2022, multiple cuttings were rooted, with some having new growth. Given the success of these cuttings, KS will collect cuttings from additional *V. menziesii* populations in FY23 and will continue working with DOFAW on planned *V. menziesii* recovery efforts, including increased monitoring of wild

plants, securing propagule collections, and establishing reintroduced populations across the species' historic range.

In mid-December 2022, a strong Kona low produced heavy rainfall and damaging winds across the Hawaiian Islands. The strong southerly winds, blowing opposite the direction of regular wind patterns, caused numerous tree falls, but they were not as damaging as the slower-moving Kona low from December 2021, which caused extensive damage to fencelines and the *V. menziesii* population at the summit of Pu'u Kipu.

CONDITION OF THE ENDANGERED SPECIES TRUST FUND

Act 144, SLH 2004, established the Endangered Species Trust Fund, whose purposes are set forth in Section 195D-31, HRS.

Description	Expenditure	Revenue	Encumbrances
Beginning Cash Balance		\$3,255,171	
Outstanding Encumbrances FY 2024			\$408,720
Total in Encumbrances from previous years			\$422,799
Contributions for the Management and Recovery of Hawai'i's Native Wildlife	\$81,892	\$1,507,006	
Subtotal Ending Balance			\$4,680,285
Total in Encumbrances			\$831,520
Total in ESTF in FY 2024			\$5,511,804
Funds rolled over from previous year's HCP Technical Assistance Program		\$-	
Funds Received as Payment for the Use of the HCP Technical Assistance Program		\$367	
Expenditures in FY 2023 for personnel		\$0	
Total in ESTF (including outstanding encumbrances)			\$5,512,172

RECOMMENDATIONS TO FURTHER THE PURPOSES OF CHAPTER 195D, HRS

Habitat Conservation Plans and Safe Harbor Agreements are necessary tools in Hawai‘i to protect threatened and endangered species while balancing growth and addressing the need for energy independence. FY 2023 marks the 25th year since the implementation of Chapter 195D, HRS, which includes the issuance of Incidental Take Licenses. The program has demonstrated numerous successes since its inception.

The following are recommendations to further improve the implementation of Chapter 195D, HRS.

- Increase staff capacity statewide for HCPs by providing four fully funded State civil service positions to effectively track and monitor funds and expenditures related to each Habitat Conservation Planning project. The staff within DLNR-DOFAW are currently three contracted members in administration managing all HCP and SHA projects throughout the islands and reviewing all projects statewide with the potential to impact threatened or endangered species. Supplemental staff are supported by grants to produce standalone HCPs. Additional staff capacity would allow for more time-efficient processing of HCP applications, development of administrative rules for the program (described in the last bullet), development of procedures for promoting consistency in HCPs, conducting follow-up monitoring for development projects, and implementation and management of mitigation and other projects that are extremely beneficial for the recovery of Hawai‘i’s threatened and endangered species.
- Continue fostering partnerships between DLNR/DOFAW, other State and Federal agencies, and private landowners to ensure program success.
- Conduct additional outreach to educate private landowners and developers on the benefits of HCPs and SHAs.
- Support the proposed Conservation Banking Bill, which gives DLNR-DOFAW the authority to establish a conservation banking system and in-lieu fee mitigation program under HRS Chapter 195D.
- Establish administrative rules under Chapter 195D, HRS, to provide guidelines, limitations, and parameters specific to the authority provided under Chapter 195D, HRS.

For information on DLNR’s Endangered Species Recovery Committee, please see <http://dlnr.hawaii.gov/wildlife/esrc/>. For a full listing of the State’s Habitat Conservation Plans and license-holder annual reports, please see <http://dlnr.hawaii.gov/wildlife/hcp/approved-hcps/>.

For further information on the State’s Habitat Conservation Plans, contact:

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