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HAWAII



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LAND  
STATE PARKS

**STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES**

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

December 5, 2018

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

The Honorable Scott K. Saiki, Speaker  
and Members of the House of  
Representatives  
Thirtieth State Legislature  
State Capitol, Room 431  
Honolulu, Hawaii 96813

Dear President Kouchi, Speaker Saiki, 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, 2017 – June 30, 2018 report, as required by Section 195D-26, Hawaii Revised Statutes (HRS). 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 <http://dlnr.hawaii.gov/reports/>.

Sincerely,

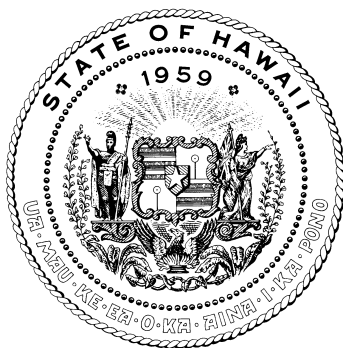
A handwritten signature in blue ink, appearing to read "Suzanne D. Case".

SUZANNE D. CASE  
Chairperson

Enclosure

**REPORT TO THE THIRTIETH LEGISLATURE  
STATE OF HAWAII  
2019 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, 2017 – JUNE 30, 2018**



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

Honolulu, Hawaii  
December 2018

**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, 2017 – JUNE 30, 2018**

**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;
- 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 take<sup>1</sup> of threatened or endangered species, if such take is incidental to an otherwise lawful activity. Habitat Conservation Plans and SHAs are important management tools in the State of Hawai‘i by accomplishing the following:

- Resolves conflicts between endangered species protection and legitimate use of natural resources;
- Contributes to endangered species recovery efforts through partnerships and proactive planning; and
- Provides 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 reporting requirement for Fiscal Year (FY) 2018 and provides detailed information for 10 HCPs and five SHAs for which ITLs have been issued. One new ITL was issued in FY 2018 (June 22, 2018) for the Kamehameha Schools SHA. Given its date of issue this SHA is not included in this report. 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.

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<sup>1</sup> “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 HCPs are shown in Figure 1.

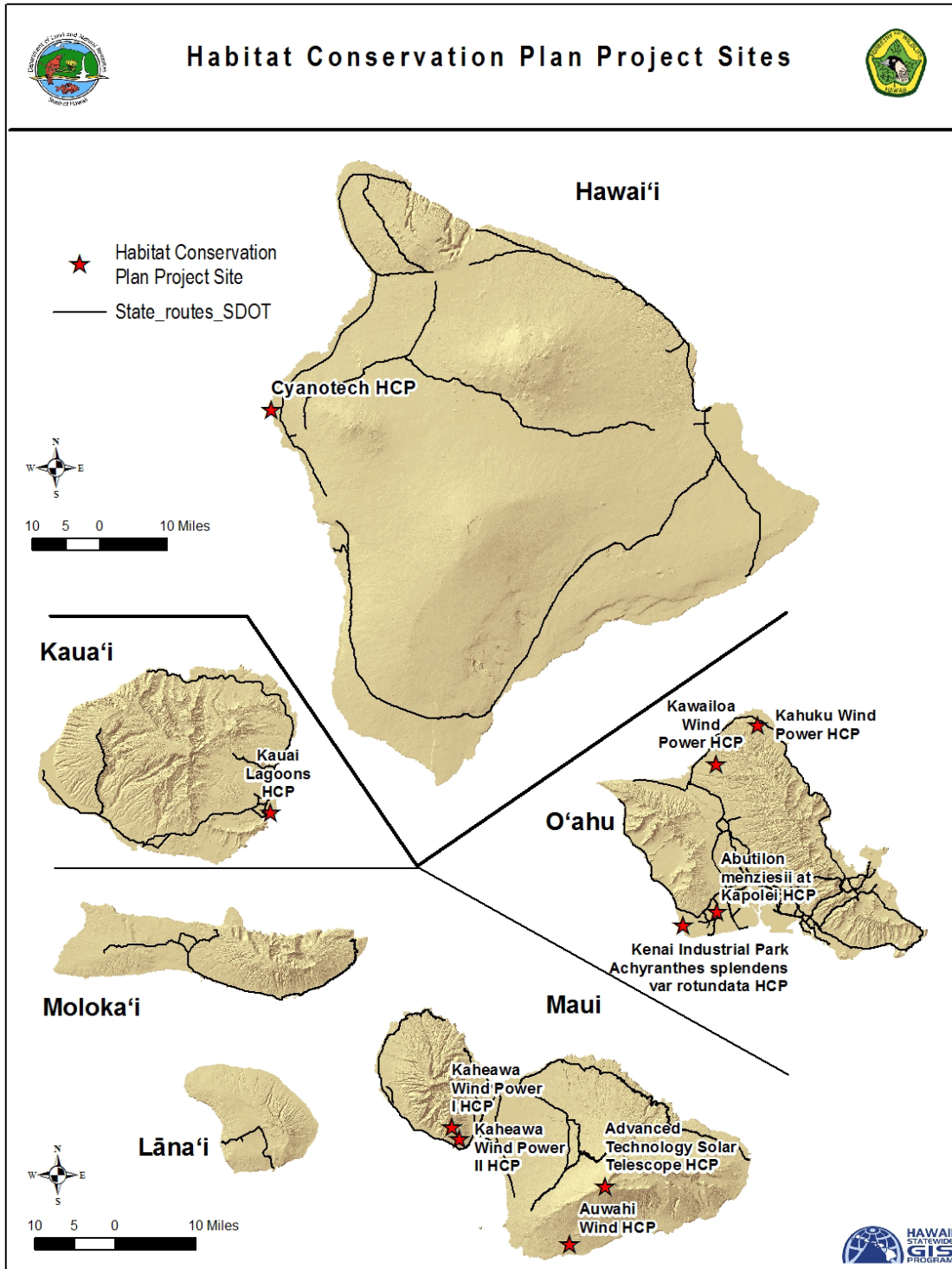


Figure 1. Habitat Conservation Plan Locations

A summary of permit status combining take of all Covered Species of wildlife since ITLs were issued is depicted in Figure 2. The incidental take shown combines observed, modeled, and indirect take to estimate a total take as of the end of FY 2018. This summary shows that for all HCPs combined the total estimated take of Hawaiian hoary bats using an 80% upper confidence estimate is slightly above the permitted take level. Estimated take of each of the other species is substantially below the total permitted take level. There was no take of plant species in FY 2018 for the two HCP's that cover plant species. Those two HCPs permitted take of plants that occurred during a limited time-frame and do not have recent on-going take.

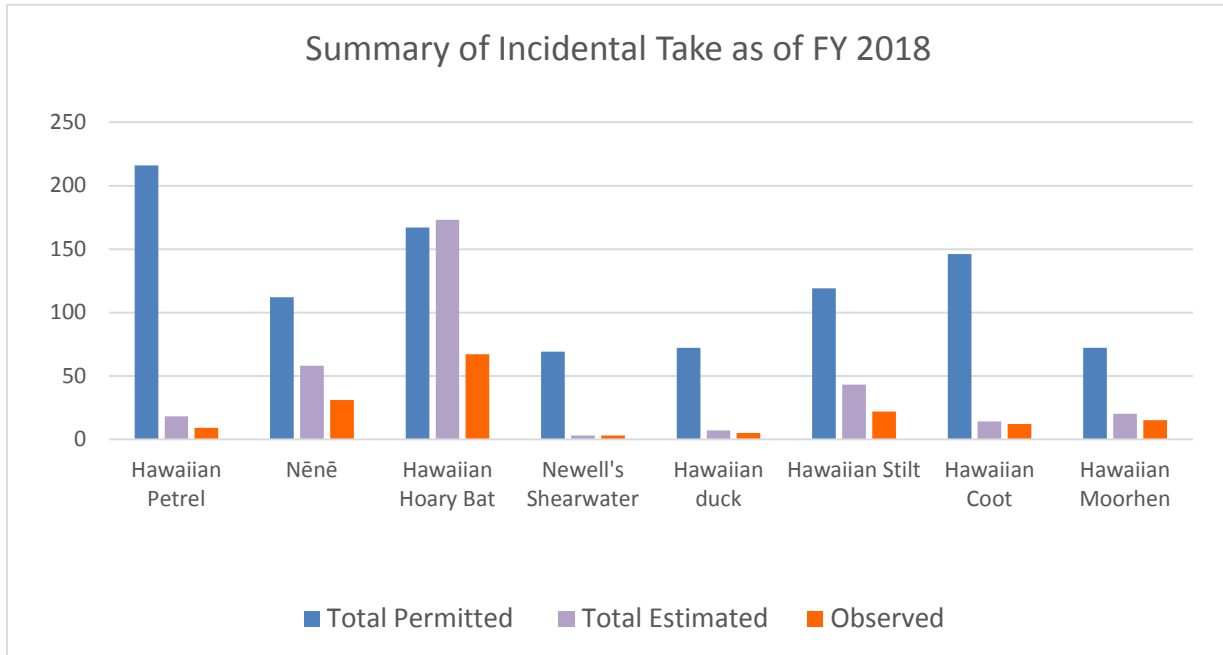


Figure 2. Total permitted take, observed take, and estimated take (includes indirect take and, for wind energy sites, modeled unobserved take at the 80% upper confidence level) of HCP-covered wildlife species for all approved HCPs as of June 30, 2018.

**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  
(Terraform Power owns 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

Take Authorization Over 20-year Term:



*Kaheawa Wind Power project in West Maui above Ma'alaia.*

Table 1. Take Authorization for KWP I.

Common Name	Scientific Name	Baseline Limit (Tier 1) <sup>1</sup>	Higher Limit (Tier 2) <sup>1</sup>
'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 <sup>a</sup>

<sup>1</sup>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.

<sup>a</sup>This higher limit for the Hawaiian Hoary Bat was approved by minor amendment in 2016.

Status of ITL: Table 2 provides a listing of the HCP covered species fatalities during the reporting period. Three fatalities of Hawaiian short-eared owls (Pueo) were documented at KWP I during the reporting period, although it is not listed as endangered on Maui.

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

Common Name	FY18 Fatalities
Nēnē	1
Hawaiian hoary bat	1

Beginning in April 2015 the downed wildlife search area was reduced relative to the previous ten years and now consists of graded roads and WTG pads found within a 70-meter radius circle centered on each turbine. Beginning in October 2015 canine-assisted searching was implemented, with visual searching as a secondary method.



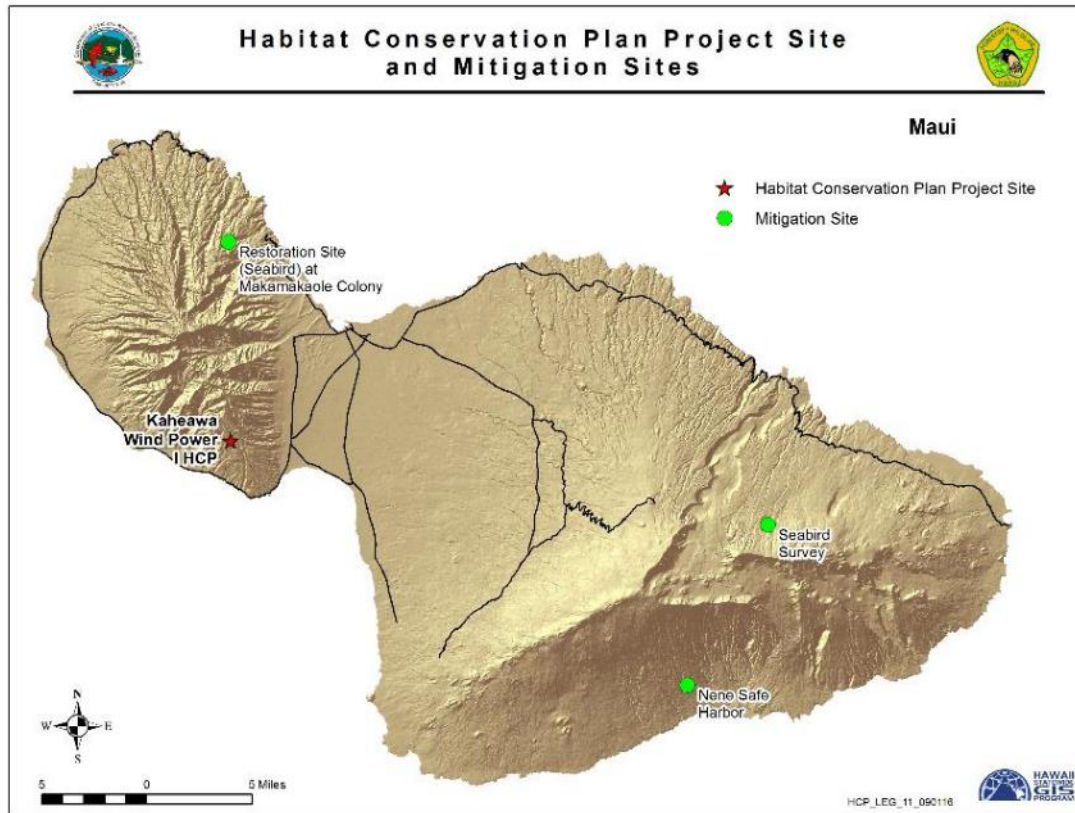


Figure 3. Location of Kaheawa Wind Power I HCP

Table 3 provides an estimate of the overall total adjusted take that has occurred since KWP I ITL issuance. In addition to the total estimated take, accrued lost productivity from 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 for Hawaiian Petrel and Nēnē are 10.2 and 8.7 individuals, respectively. Although not listed as endangered on Maui it is noteworthy that 16 fatalities of the Hawaiian short-eared owl (Pueo) have been reported in the KWP I project vicinity since the ITL was issued. Reports indicate that the majority of the fatalities, not necessarily all, are due to project operations.

Table 3. Total observed fatalities and estimated total take since ITL issuance under the KWP I ITL as of June 30, 2018.

Common Name	Total Observed Take <sup>1</sup>	Estimated Unobserved Take <sup>2</sup>	Indirect Take using HCP multipliers	Total Estimated Take
Hawaiian Petrel	6	5	3	15
Nēnē	23	14	2	39
Hawaiian Hoary Bat	8	15	5	28

<sup>1</sup> 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).

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



## Mitigation Status:

### *Hawaiian Petrel & Newell's Shearwater.*

Mitigation for the two seabird species (Hawaiian Petrel and Newell's Shearwater) is being implemented in conjunction with Kaheawa Wind Power II. The primary mitigation entails management of two constructed (approximately four acres) predator-free fenced enclosures (one for each species), provisioned with artificial burrows and social attraction, at the Makamaka'ole site in West Maui. Within the enclosures activity of Newell's Shearwater and another species not covered in the HCP, Bulwer's petrel, were recorded at a few burrows and eggs have been observed in a few of the burrows but there has been no evidence of hatching to date. Work in FY 2018 at Makamaka'ole focused on predator trapping and tracking, ongoing maintenance of both enclosures, artificial burrow checks, and game camera operation.

Small numbers of rats and mice continue to be trapped inside the enclosures and rats, mice, and mongoose are trapped outside the enclosures. Barn owl control contracted to DOFAW began at night in March 2017. In FY 2018 three barn owls were removed during 25 night visits.

To mitigate for the loss of productivity accrued from Hawaiian Petrel estimated take not yet mitigated for, additional Hawaiian Petrel nesting colony assessment and predator control by Pūlama Lāna'i on Lāna'i Island has been funded and arranged through the USFWS. Funds were provided to a dedicated account with the National Fish and Wildlife Foundation (NFWF).



*Enclosures A & B at the Makamaka'ole seabird mitigation site, West Maui.*

*Nene.* Nēnē baseline mitigation continued in FY 2018 at the Haleakala Ranch pen. Nēnē fledgling production in 2018 was one bird.

*Hawaiian Hoary Bat.* The modification to authorize additional bat take and the associated mitigation proposal was approved October 19, 2015 and January 20, 2016 by the USFWS and DOFAW, respectively. Hoary bat baseline mitigation is complete and Tier 2 mitigation that will account for take of 15 of the higher take amount of 30 bats began May 2017 and is comprised of Hawaiian hoary bat ecological research on East Maui contracted to H.T. Harvey Ecological Consultants to better inform future bat habitat restoration and conservation. Additional mitigation required for the hoary bat will consist of funding bat ecological research on Hawai'i Island contracted to the US Geological Survey.

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

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

Take Authorization Over 20-year Term:



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

Table 5. Take Authorization for KWP II.

Common Name	Scientific Name	Level of Take <sup>1</sup>	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
‘Ōpe‘ape‘a or Hawaiian Hoary Bat <sup>2</sup>	<i>Lasiurus cinereus semotus</i>	Tier 1	7 individuals	7 individuals
		Tier 2	11 individuals	11 individuals

<sup>1</sup> 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.

<sup>2</sup> Minor amendment to clarify permitted bat take processed on November 26, 2014.

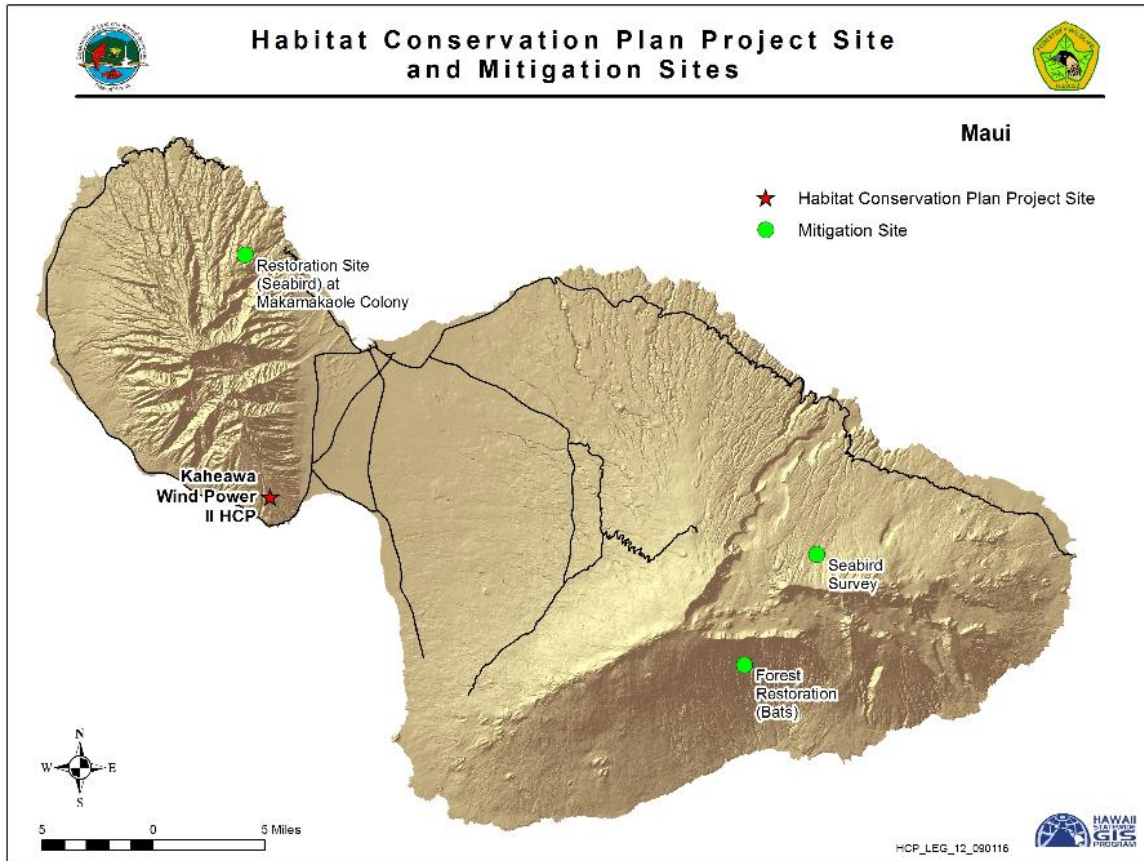


Figure 4. Location of Kaheawa Wind Power II HCP

**Status of ITL:** Table 6 provides a listing of the HCP covered species fatalities during the reporting period.

Table 6. Documented fatalities of HCP covered species during the reporting period.

Common Name	FY18 Fatalities
Nēnē	5

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 7 provides an estimate of the overall total adjusted take that has occurred since KWP II ITL issuance. In addition to the total estimated take, accrued lost productivity from 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 for Nēnē is 2.3 individuals.

Beginning in July 2015 the search plot areas were reduced in size relative to the size of plots searched prior to July 2015. The reduced search area includes only roads and graded WTG pads found within a circle of radius 70m centered on each WTG. Canine-assisted searching in FY 2018 was the primary search method accounting for 94.1% of the downed wildlife monitoring searches.

Table 7. Total observed fatalities and estimated total take since ITL issuance covered under the KWP II ITL as of June 30, 2018.

Common Name	Total Observed Take <sup>1</sup>	Estimated Unobserved Take <sup>2</sup>	Indirect Take using HCP multipliers	Total Estimated Take
Nēnē	6	8	1	15
Hawaiian Hoary Bat	3	9	1	13

<sup>1</sup> 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).

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

The total estimated take of 13 bats (with 80% statistical certainty) exceeds both the Tier 1 and Tier 2 permitted take levels for bats. The total estimated take of 46 bats (with 80% statistical certainty and indirect take) exceeds the total permitted take for bats. KWP II has submitted an amended HCP to the agencies for review and a public draft was released in October 2017.

Mitigation Status:

*Hawaiian Petrel and Newell’s Shearwater.* Mitigation for the two seabird species (Hawaiian Petrel and Newell’s Shearwater) is being implemented in conjunction with Kaheawa Wind Power I. As described for KWP I the primary mitigation entails management of two constructed (approximately four acres) predator-free fenced enclosures (one for each species), provisioned with artificial burrows and social attraction, at the Makamaka‘ole site in West Maui. Please see the description under KWP I for mitigation activities and results related to the Makamaka‘ole site.

Alternative seabird mitigation site surveys began in East Maui adjacent to Haleakalā National Park in FY 2015 and were completed in FY 2016. These studies deployed Wildlife Acoustics SM2BAT+™ acoustic detectors at 60 locations in approximately 8,000 hectares between 3,000-8,000 foot altitudes.

*Nēnē.* Nēnē mitigation contracted to DOFAW for Tier 1 estimated take has been funded for two years and began March 2017. Mitigation in FY 2018 was conducted at the Pi‘iholo Ranch pen where Nēnē fledgling production in 2018 was three birds.

*Hawaiian Hoary Bat.* In accordance with the KWP II HCP, baseline mitigation for the Hawaiian Hoary Bat was implementation of bat habitat improvement measures on at least 338 acres. Mitigation for Tier 1 and Tier 2 estimated bat take has been completely funded and is ongoing vegetation out-planting and habitat management at the Kahikinui State Forest Reserve.

*Pueo.* Although the Pueo is not a listed species on Maui, KWP II included Pueo in their HCP and provided mitigation compensation in the form 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 in 2017 on O‘ahu which was completed in FY 2018 and can be viewed at <https://www.pueoproject.com>.

## 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



Kahuku facility on the North Shore of O'ahu.

Take Authorization Over 20-year Term:

Table 8. Take Authorization for Kahuku Wind HCP.

Common Name	Scientific Name	Level of Take <sup>1</sup>	Annual Take Limit <sup>2</sup>	5-year Take Limit <sup>3</sup>	20-year Take Limit <sup>3</sup>
'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 <sup>4</sup>	<i>Lasiurus cinereus semotus</i>	Baseline	7	14 individuals	16 individuals
		Higher	14	16 individuals	25 individuals
Pueo or Hawaiian Owl	<i>Asio flammeus sandwichensis</i>	Baseline	4	12 adults	16 adults
		Higher	8	16 adults	24 adults

<sup>1</sup> 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.

<sup>2</sup> Exceeding the Annual Take Limit (including observed and unobserved take) will require one or more of the following: adaptive management, increased mitigation, or a major ITL amendment.

<sup>3</sup> "5-Year" and "20-year" take limits are cumulative for the respective period of years.

<sup>4</sup> Minor amendment to clarify permitted bat take processed on November 26, 2014.



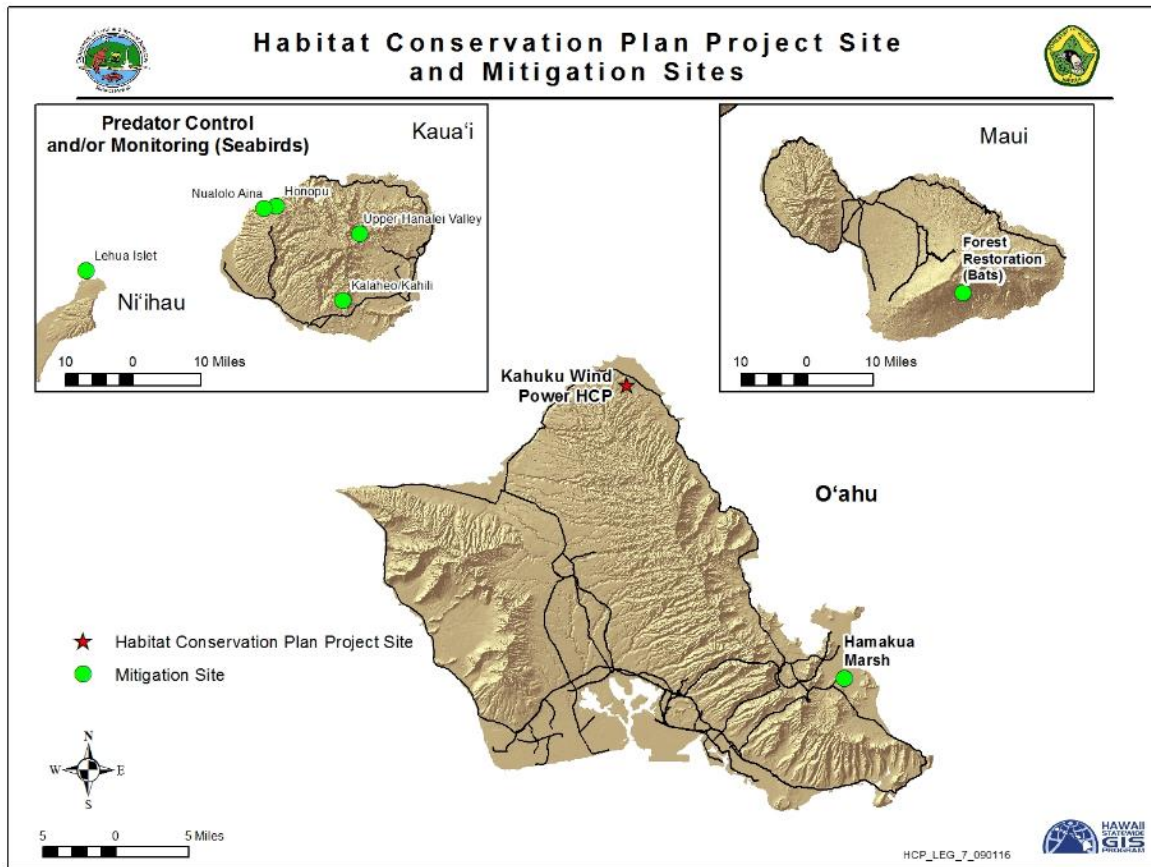


Figure 5. Location of Kahuku HCP

Status of ITL: There were no fatalities of an HCP covered species at Kahuku Wind Power during FY 2018. There were no documented fatalities of species listed as threatened or endangered in Hawaii at the Kahuku Wind Power facility during the FY 2018 reporting period.

Table 9 provides an estimate of the overall total adjusted take that has occurred since Kahuku Wind ITL issuance.

Table 9. Total observed fatalities and estimated total take since ITL issuance under the Kahuku Wind Power ITL as of June 30, 2018.

Common Name	Total Observed Take	Estimated Unobserved Take <sup>1</sup>	Indirect Take using HCP multipliers	Total Estimated Take
Hawaiian Hoary Bat	4	5	3	12

<sup>1</sup> Based on the 80% credible maximum using the following model: Dalthorp, D., M. M. P. Huso, and D. Dail. 2017. Evidence of absence (v 2.0) software user guide: U.S. Geological Survey Data Series 1055.

## Mitigation Status:

*Hawaiian Petrel & Newell's Shearwater.* In accordance with 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 prior to FY 2018.

*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 Hamakua Marsh, part of the State's Kawainui-Hamakua Marsh Complex, for four years from FY 2012-2015. All waterbird mitigation work was completed prior to FY 2018.



*'Alae 'Ula or Hawaiian Moorhen swimming at Hamakua Marsh*

*Hawaiian Hoary Bat.* In accordance with the Kahuku Wind HCP, baseline bat mitigation consisted of a \$150,000 payment to DOFAW (procured on May 31, 2012) for preserving or enhancing foraging and/or 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.

*Pueo.* Obligations for Pueo mitigation were complete prior to 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 has 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> Funding of \$25,000 was also provided to the Hawaii Wildlife Center prior to FY 2018.



## 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



Kawailoa Wind Power, O'ahu

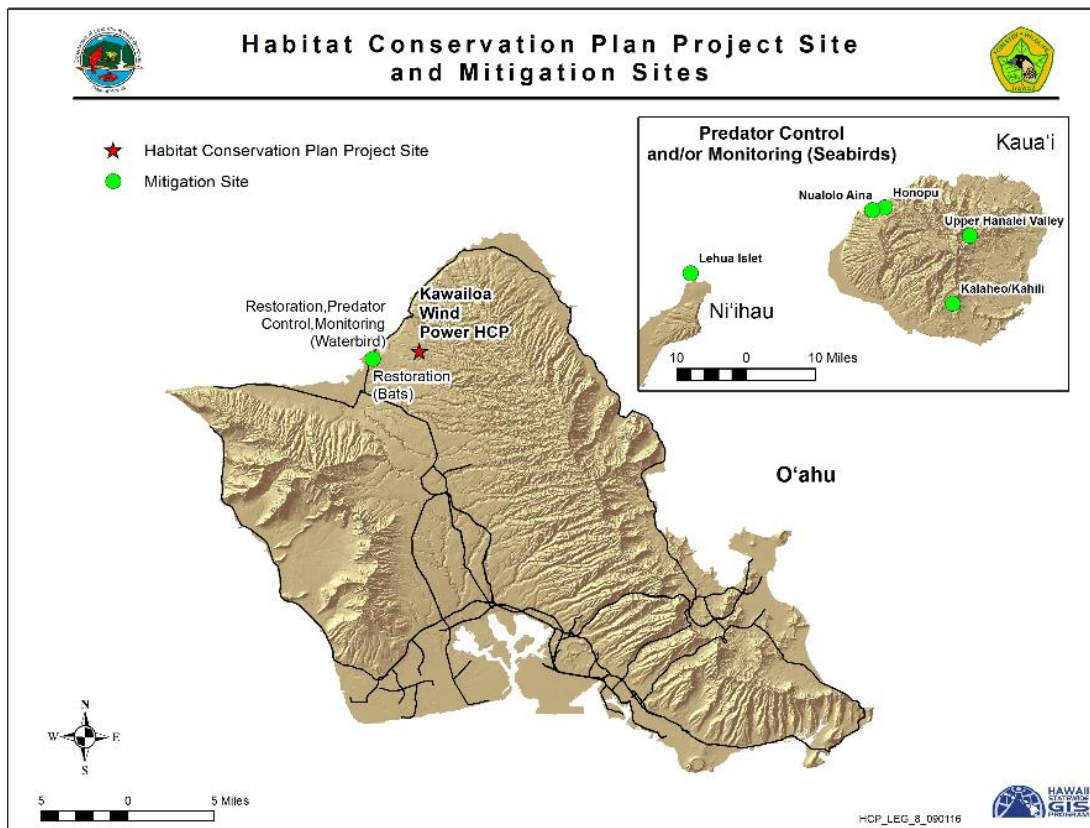


Figure 6. Location of Kawailoa HCP

### Take Authorization Over 20-year Term:

Table 11. Take Authorization for Kawailoa Wind HCP.

Common Name	Scientific Name	Level of Take <sup>1</sup>	5-year Take Limit <sup>2</sup>	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

Common Name	Scientific Name	Level of Take <sup>1</sup>	5-year Take Limit <sup>2</sup>	20-year Take Limit
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'ō 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'ō 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
'Ōpe'ape'a or Hawaiian Hoary Bat <sup>3</sup>	<i>Lasiurus cinereus semotus</i>	Tier 1	20 individuals	20 individuals
		Tier 2	40 individuals	40 individuals
		Tier 3	60 individuals	60 individuals
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

<sup>1</sup>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.

<sup>2</sup>Exceeding the 5-year Take Limit (including observed and unobserved take) will require one or more of the following: adaptive management, increased mitigation, or a major ITL amendment.

<sup>3</sup> Minor amendment to clarify permitted bat take processed on November 26, 2014.

**Status of ITL:** Table 12 provides a listing of HCP covered species fatalities at the Kawaiiloa Wind Power facility during FY 2018.

Table 12. Documented fatalities of HCP covered species and one endangered species not covered at Kawaiiloa Wind Power during the reporting period.

Common Name	FY18 Fatalities e
Hawaiian Hoary Bat	5
Hawaiian Petrel ( <i>Pterodroma sandwichensis</i> )	1

Table 13 provides an estimate of the overall total adjusted take that has occurred since Kawaiiloa 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, 2018.

Common Name	Total Observed Take <sup>1</sup>	Estimated Unobserved Take <sup>2</sup>	Indirect Take using HCP multipliers	Total Estimated Take
Hawaiian Hoary Bat	35	31	7	73
Hawaiian Petrel	1	ND	ND	ND

<sup>1</sup> 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).

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

ND - Not determined.

With completion of three years of intensive monitoring in November 2015 and concurrence from the USFWS and DOFAW, fatality-monitoring plots were reduced in size on November 1, 2015 to 35m radius circular plots. These plots are centered on the wind turbine generators (WTGs) and searched twice per week.

The total estimated take of 73 bats (with 80% statistical certainty and indirect take) exceeds the total permitted take for bats. Kawailoa has submitted an application and amended HCP to the agencies for review and approval. The amendment is planned for public release in FY 2019.

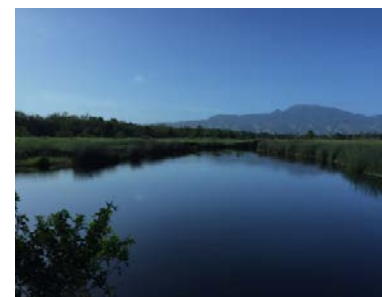
Mitigation Status:

*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 end of FY 2015.

*Hawaiian Duck, Hawaiian Stilt, Hawaiian Moorhen, & Hawaiian Coot.* The 'Uko'a Wetland mitigation program for Tier 1 mitigation continued for waterbirds In FY 2018, activities associated with Tier 1 included invasive vegetation removal, predator control, monitoring predator presence, and fence monitoring and maintenance. In FY 2018, a total of 205 predators were removed from 'Uko'a Wetland including 29 pigs, 139 mongoose, 10 cats, 24 rats, and 3 mice. A total of 39 waterbird surveys were completed in FY 2018 at 'Uko'a Wetland. The Hawaiian moorhen was the listed waterbird species most frequently detected during weekly surveys. Moorhen breeding activity (e.g., nests or chicks) was observed at three PC stations between December 2017 and April 2018 (Figure 11). Chicks were seen at three locations between December and March 2018. No Hawaiian coot were seen in FY 2018. Twenty-seven detections of adult Hawaiian stilt were made on 11 survey dates in FY 2018. Stilts have been observed survey stations, as well as flying overhead. No Hawaiian stilt breeding activity was observed in FY 2018.



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



*Hawaiian Hoary Bat.* In FY 2018, activities associated with Tier 1 included invasive vegetation removal, bat lane construction, and bat acoustic monitoring. During FY 2018, three bat lanes were created in three separate zones bringing the total number to 16 bat lanes within 10 zones throughout 'Uko'a Wetland. In FY 2018, Hawaiian hoary bats were detected on 496 of 3,381 detector-nights at 'Uko'a (yielding a proportion of 0.147 detections per detector-night). The detections exhibited a seasonal pattern with an increase in activity in the dry summer months followed by a decrease in activity in the winter months. Kawaiiloa Wind has contracted three studies as Tier 2/3 bat mitigation that are ongoing and results are not yet available for FY 2018. USGS has been contracted for two studies: Modeling Foraging Habitat Suitability of the Hawaiian Hoary Bat, and Hawaiian Hoary Bat Conservation Genetics, and WEST will carry out island wide acoustic surveys on Oahu.



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

*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 has 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>.

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

ITL Licensee: Auwahi Wind Energy, LLC (owned by Sempra U.S. Gas & Power)

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

ITL Duration: February 9, 2012 – February 9, 2037



*Auwahi Wind Power, Maui*

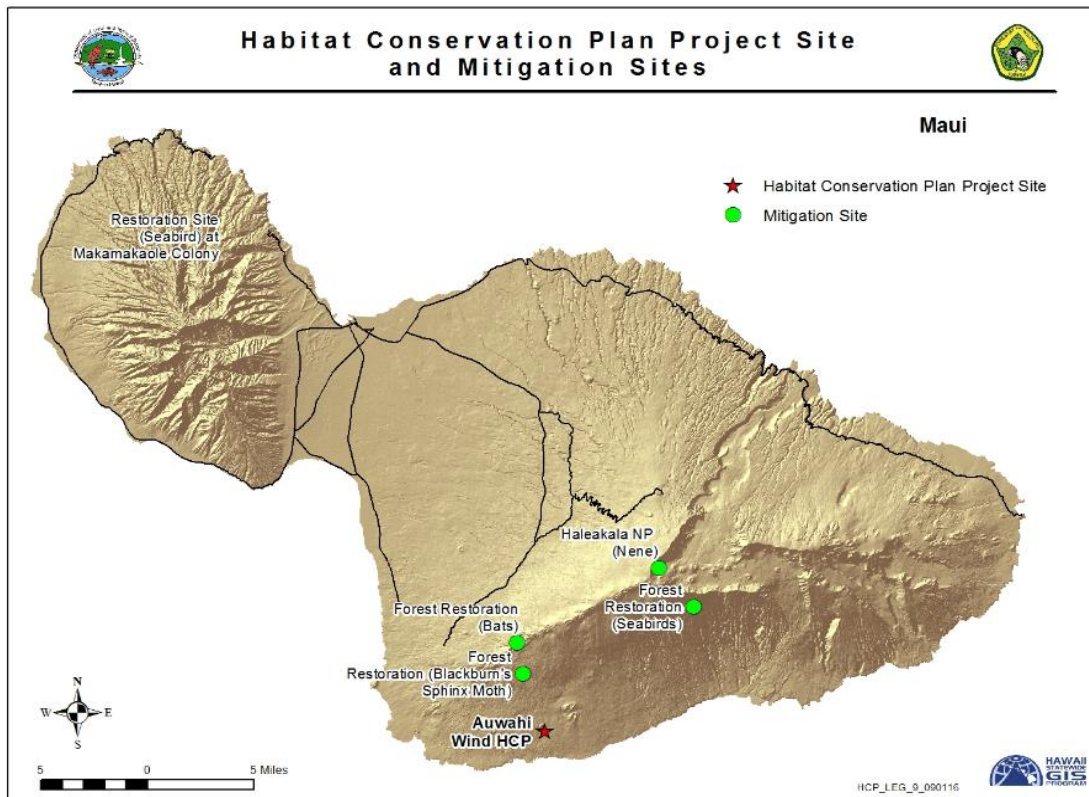


Figure 7. Location of Auwahi HCP

## Take Authorization Over 25-year Term:

Table 15. Take Authorization for Auwahi Wind HCP.

Common Name	Scientific Name	Level of Take	25-year Limit <sup>8</sup>
'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 <sup>1</sup>	<i>Lasiurus cinereus semotus</i>	Tier 1	6 individuals
		Tier 2	11 individuals
		Tier 3	21 individuals
Blackburn's Sphinx Moth	<i>Manduca blackburni</i>	Not applicable	28-acres permanently disturbed habitat is an index of take

<sup>1</sup> 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.

Status of ITL: Table 16 provides a listing of HCP covered species fatalities at the Auwahi Wind Energy facility during FY 2018.

Table 16. Documented fatalities of HCP covered species and species of concern at Auwahi during the reporting period.

Common Name	Scientific Name	FY18 Fatalities
Hawaiian Hoary Bat	<i>Lasiurus cinereus semotus</i>	7
Hawaiian Petrel	<i>Pterodroma sandwichensis</i>	1

Table 17 provides an estimate of the overall total adjusted take that has occurred since Auwahi Wind ITL issuance.

Table 17. Total observed fatalities since ITL issuance and estimated total adjusted take covered under the Auwahi Wind Energy ITL as of June 30, 2018.

Common Name	Total Observed Take <sup>1</sup>	Estimated Unobserved Take <sup>2</sup>	Indirect Take	Total Adjusted Take
Hawaiian Hoary Bat	17	24	5	46
Hawaiian Petrel	1	2	2	5

<sup>1</sup> 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).

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

The total estimated take of 46 bats (with 80% statistical certainty and indirect take) exceeds the total permitted take for bats. Auwahi has submitted an application and amended HCP to the agencies for review and approval. The amendment is planned for public release in FY 2019.

### Mitigation Status:

*Hawaiian Petrel.* Mitigation for take of Hawaiian Petrels in FY 2018 (2017 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. As in



previous years, all monitoring protocols followed methods used by the National Park Service. New burrows located were marked, mapped, and added to the monitoring dataset. In the most recent breeding season, 70 petrel burrows were being monitored, 29 of which showed signs of consistent activity. Nine burrows successfully fledged a chick.

The predator control strategy continued to assess rat and mongoose activity across the entire management area. Traps which were checked and baited every two weeks for a total of 34 weeks from March to mid-October. Trapping resulted in the removal of 16 mice and 4 rats.

*Nēnē.* Auwahi Wind provided a one-time payment of \$25,000 to the Haleakala 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 130 acres of pastureland in the Waihou Mitigation Area (the Pu‘u Makua parcel) to create roosting and foraging habitat for the Hawaiian Hoary Bat. Restoration of this area included a perimeter fence and the removal of ungulates. The fence was inspected quarter in FY18 and is in good condition. Invasive plant species control is continuing to meet success criteria targets. Outplant survival was measured at 87 percent in 2017 (out of 13,651 originally outplanted native plants) and in FY18 replanting to replace all lost plants continued. FY 2018 (Year 3) monitoring of percent vegetative cover along all transects showed an overall percent cover of native woody vegetation of 24 percent.

Tier 2 mitigation is completed. Auwahi worked with Frank Bonaccorso of the US Geological Survey (USGS) to develop a research project combining radio telemetry and acoustic monitoring to track the success of mitigation efforts at Waihou, as well as to 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 3 for one year and results have been reported previously.

Results from a Tier 3 bat mitigation study conducted by USGS were reported for the Pu‘u Makua Restoration site within the Waihou mitigation area on ‘Ulupalakua Ranch. Results reported were for bat activity using six acoustic monitoring stations and evaluation of the insect prey base and food habits. Bat activity was detected at all stations with the percent of nights with bat activity from April 2015 to September 2016 ranging from 10 to 66 percent. Activity did not vary substantially over the seasons and core use areas could not be discerned. Three bats, all adult males, were captured in mist nets adjacent to a game pond and two were radio-tagged. However, the site terrain and radio interference was not conducive for radio-tracking and data collected was not useful. Over 30 species and morpho-species of Lepidopterans (moths) were identified from traps. Additional sampling of vegetation identified a variety of additional moths and beetles. Due to the lack of success with radio telemetry, adaptive management shifted the project toward insect prey base and food habitat assessment objectives and additional acoustic monitoring. A provisional report was provided with some results for FY 2018. Additional results will be provided in a final report in FY 2019.

Acoustic monitoring showed a high bat activity and slight seasonal variation in the pooled samples of detectability from all the Pu‘u Makua sampling stations. A lower level of bat activity but a stronger signal of season variation was documented in the pooled samples of detectability from the sampling stations in the Auwahi Wind turbines vicinity.



Bats of both sexes were captured, including pregnant females, during the summer mist netting period. The insect prey base was sampled for a second season using malaise and light traps, as well as repeated vegetation sampling of restoration area plantings. From initial evaluation of the insect community, a Lepidopteran and Coleopteran prey base for bats currently exists in the Waihou vicinity, and within the Pu'u Makua Restoration Area.

*Blackburn's Sphinx Moth.* Baseline mitigation for Blackburn's Sphinx Moth consisted of a contribution of \$144,000 to the Leeward Haleakala 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 Blackburn's Sphinx Moth. Through FY 2018 a total of 1,086 'Aiea have been planted toward the goal of 1,500 on 11 acres. During FY 2018 92 tree tobacco (*Nicotiana glauca*) plants, a non-native invasive host plant for the moth, were removed from the Project. Four larvae were detected during visual surveys of tree tobacco in FY 2018 in the turbine #4 area and were relocated.

**Transportation Projects**

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

ITL Licensee: Hawai‘i Department of Transportation

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

ITL Duration: March 18, 2005 – July 31, 2021



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

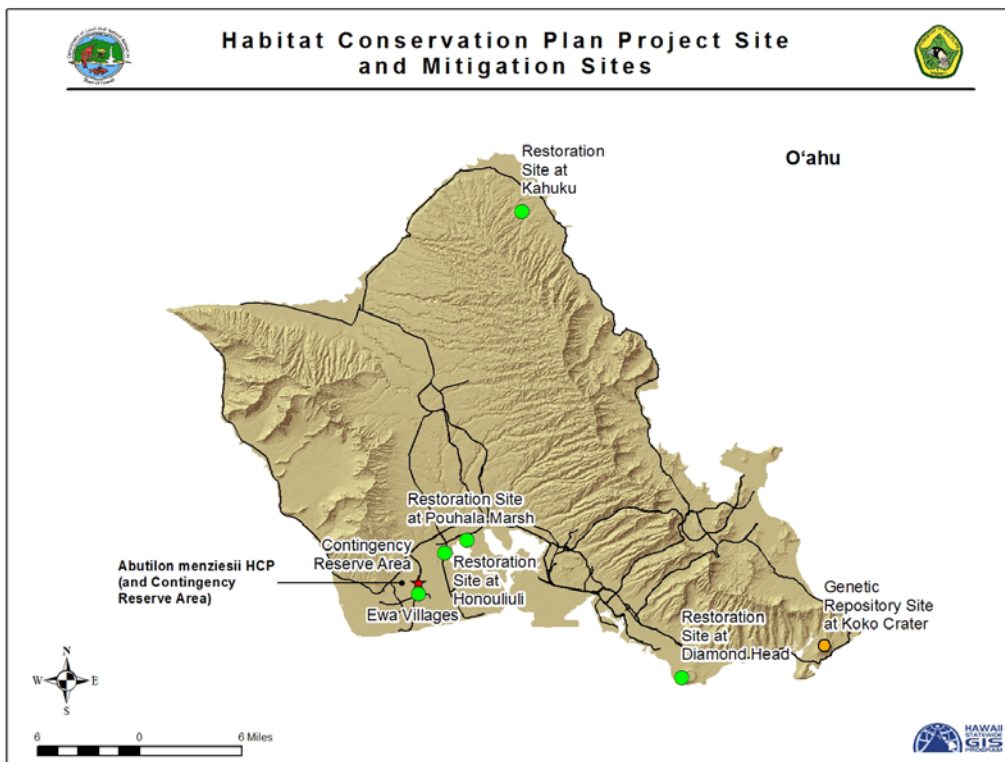


Figure 8. Location of *Abutilon* HCP

Take Authorization:

Table 18. 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: All plants have been moved. Five mitigation sites are being established and a genetic repository location contains plants with genetic representation of the plants moved. A contingency reserve area has been established with additional plantings to remain until success has been confirmed at the three mitigation sites.

### Mitigation Status:

The goal of the HCP is 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 is the establishment of three wild sites that are protected 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 newly established over the past year in the attempt to bring this species conservation efforts into current DOFAW projects with long-term project investment by the Oahu branch. They are: Hamakua Marsh in Kailua, Makua Keaau Forest Reserve in western O‘ahu, and a Waianae Mountains Watershed Partnership restoration site in Waianae Kai. The species is being incorporated within these already established efforts to help ensure long-term progress at little to no added cost of expansion and maintenance efforts. An additional small population has been established at the Ewa Villages Golf Course in close proximity to the project site that is now serving as a second genetic reserve in addition to the main genetic reserve site established at Koko Crater Botanical Garden, currently with 84 mature plants (76% genetic representation).

Until there is assurance that success criteria are met there is also maintained a Contingency Reserve Area within the 13,381-acre project area that currently has 68 mature (reproductive) *A. menziesii* plants. From an original founder population of 93 plants on the project site in 2002, out-planting efforts have resulted in establishment of 499 mature *A. menziesii* plants at targeted wild sites plus the plants at the genetic reserve sites and the Contingency Reserve Area. A DOFAW Horticulturist/Botanist is working to ensure successful natural regeneration of out-planted individuals. Current monitoring data indicate that a total of 112 seedlings from out-planted individuals have survived at least five years (all are at two of the wild sites). The main reason for the lack of seedling recruitment and survivorship may be a lack of sufficient moisture on a regular basis, which may be due to a variety of factors. DOFAW is actively trying to address this issue by researching other projects involving this species, researching the seed viability, by the continued addition of common native associate species into current populations to relieve weed pressure, and continued evaluation of seedling success at the various sites.

Funding Source and Status: Funding to implement mitigation activities was provided to DOFAW from the Hawai‘i Department of Transportation. Table 19 provides the HCP summary of revenue and expenditures.

Table 19. Summary of Revenue and Expenditures for the *Abutilon menziesii* HCP at Kapolei.

<b>Description</b>	
Available revenue	<b>\$166,567</b>
Expenditures in FY17	\$7,500
Encumbrances in FY17	\$93,791
<b>Ending balance</b>	<b>\$66,276</b>

*Other Development Projects*

**Cyanotech Aquaculture Facility Habitat Conservation Plan, Keahole Point, Hawai'i. Approved 2003.**

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; Renewal application for 2016-2035 in Process

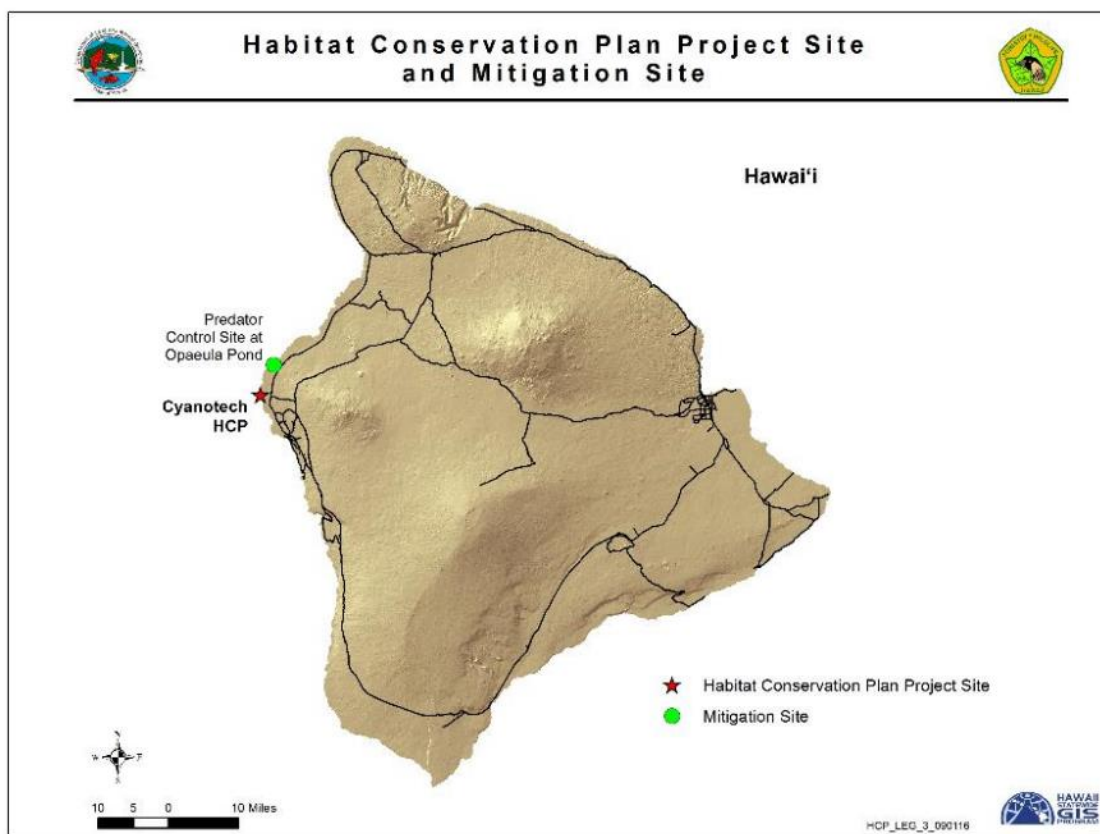


Figure 9. Location of Cyanotech HCP

Take Authorization Over 13-year Term:

Table 20. 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 <sup>1</sup>
2016-2035* (requested renewal)	Ae'o or Hawaiian Stilt	<i>Himantopus mexicanus knudseni</i>	38 (requested)

\*not yet approved

Status of ITL: There were no fatalities of an HCP covered species at Cyanotech during FY 2018.

There were no documented fatalities of species listed as threatened or endangered in Hawaii at the Cyanotech facility during the FY 2018 reporting period.

In accordance with the Cyanotech HCP, surveys for incidental take are conducted once per week during the nesting season (March-August) and once per month during the non-nesting season (September-February). Monitoring for injured wildlife is conducted daily as part of normal operations of the production raceways. Monitoring documented two nests with six eggs total, four were abandoned, and two were lost after a heavy rain event. No hatchlings were reported at the facility during the reporting period.

Table 21 provides an estimate of the overall total adjusted take that has occurred since Cyanotech ITL issuance.

Table 21. 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 <sup>1</sup>
Hawaiian Stilt	18 adults, 4 chicks	43 fledglings

<sup>1</sup> Total adjusted take represented as number of fledglings, based on the survival rate of 2.17 fledglings with respect to incidental take of adult as described in the 2006 Cyanotech Amendment.

Mitigation Status:

*Hawaiian Stilt.* Prior to the HCP, mitigation occurred onsite at a lake that was 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. Prior to being shut down, the on-site lake resulted in 237 fledglings. 48 of those 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. ‘Opae‘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 ‘Opae‘ula pond to meet mitigation obligations to satisfy the HCP.

**Renewal:** In June 2016, Cyanotech requested a renewal for permit and HCP, with a requested take of 38 Hawaiian Stilts for the next 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.

Cyanotech will also continue funding the annual Kona Waterbird Survey for the duration of the requested permit term (2016-2035).

**Daniel K. Inouye Solar Telescope (formerly the Advanced Technology Solar Telescope) Construction Habitat Conservation Plan, Halekalā High Altitude Observatory Site, Maui, Hawai'i. Approved 2011.**

ITL Licensee: National Science Foundation

Project: Construction of the Daniel K. Inouye Solar Telescope (DKIST) within the 18-acre University of Hawai'i Institute for Astronomy Haleakalā High Altitude Observatory site at the summit of Haleakalā.



DKIST Facility on Haleakalā summit.

ITL Duration: December 1, 2011 – December 1, 2021

Take Authorization Over 10-year Term:

Table 22. Take Authorization for the DKIST HCP.

Common Name	Scientific Name	Total Authorized Over ITL Duration
'Ua'u or Hawaiian Petrel	<i>Pterodroma sandwichensis</i>	30 fledglings and 5 adults

Status of ITL: There were no fatalities of an HCP covered species or species listed as threatened or endangered in Hawaii at DKIST during FY 2018. No petrel collisions have been recorded during monitoring since beginning the project in 2011.

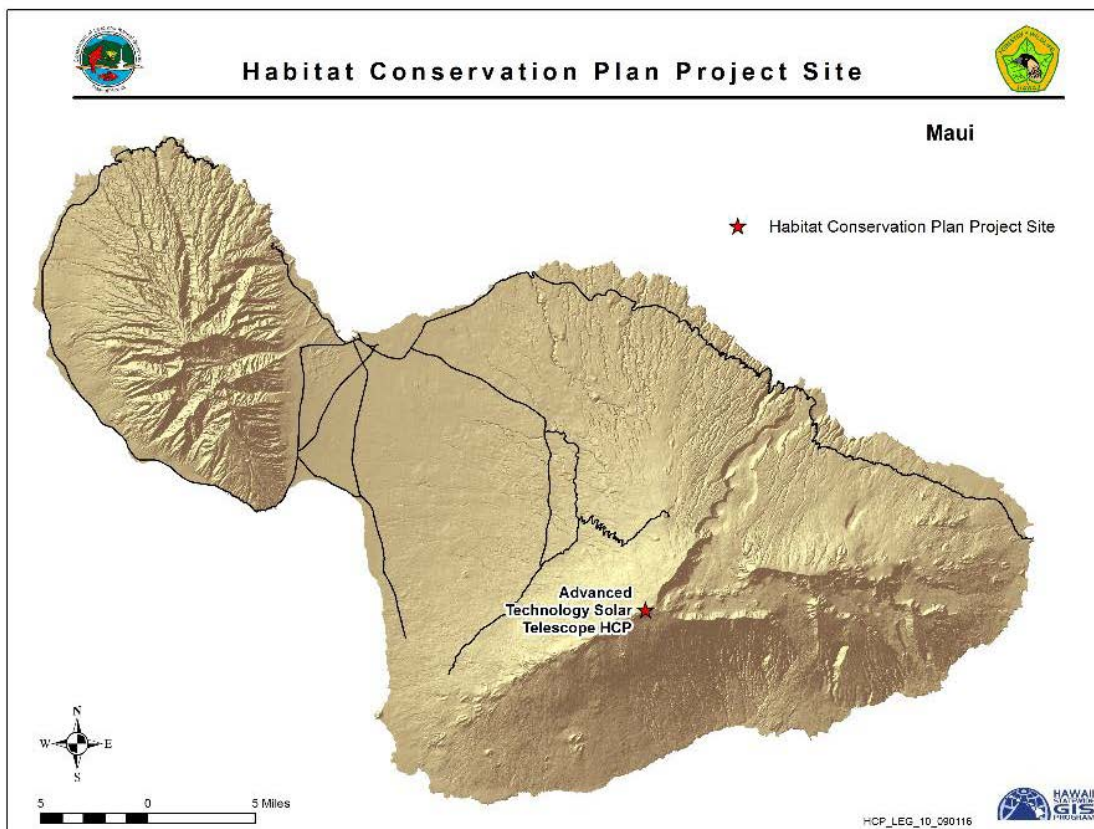


Figure 10. Location of the Daniel K. Inouye Solar Telescope HCP (formerly known as the Advanced Technology Solar Telescope HCP)

Bird-strike monitoring has occurred annually during seabird nesting season, February 1 to November 30, since 2011. In accordance with the HCP, areas around the two Federal Aviation Administration (FAA) towers, the telescope construction site, and the conservation fence are monitored. No collision events associated with the towers or conservation fence have been detected since bird-strike monitoring began in 2011. Noise and vibration monitoring is also conducted to determine if the burrows nearest the construction site are impacted by construction activities. No construction activity to date has produced vibrations meeting or exceeding the threshold of 0.12 in/sec established in the HCP, and noise levels at burrow entrances have averaged 56 dBA which is usually not above ambient wind noise levels. Most external construction was completed as of early March of 2016, and therefore, as of March 7, 2016 construction noise and vibration monitoring was not measured at the DKIST site except during large, noisy, or earth-moving operations.

Table 23. Total observed fatalities since ITL issuance and estimated total adjusted take covered under the DKIST ITL as of June 30, 2018.

Common Name	Total Observed Take
‘Ua‘u or Hawaiian Petrel	0

Mitigation Status:

*Hawaiian Petrel.* In accordance with the HCP, DKIST constructed a 4.23 km ungulate-proof fence enclosing a 313-acre Conservation Area adjacent to Haleakalā National Park. After fence construction no ungulates have been detected within the Conservation Area since September 12th, 2013, with the exception of one juvenile goat that was observed just one time in 2017 and not seen again.

DKIST monitored 392 burrows, with 359 in the conservation area and 33 burrows in the control site. Only the conservation site burrows were included in calculations for reproductive success. There were 84 camera traps installed in the Conservation Area in 2017 (FY 2018).

The 2017 (FY 2018) season noted 189 active burrows in the conservation area, with 53 of those burrows successfully producing a fledgling for a 28% nesting success.

Predator control has been ongoing since September 2012. As of the end of the 2017 season (FY 2018; FY 2019 season is ongoing), it is estimated that the predation of 22 chicks and 12 adult Hawaiian Petrels have been prevented due to the predator control measures implemented by the DKIST Project. This net reduction in predation of 34 birds represents a significant net recovery benefit to the species.



**Kaua‘i Lagoons Habitat Conservation Plan, Kaua‘i, Hawai‘i. Approved 2012.**

ITL Licensee: Kaua‘i Lagoons, LLC

(Note that Tower Kaua‘i Lagoons, LLC is the current name of the entity now holding the license)

Project: Oceanfront resort encompassing approximately 600 acres.

ITL Duration: April 11, 2012 – April 11, 2042



*Kaua‘i Lagoons, Kaua‘i.*

Take Authorization Over 30-year Term:

Table 24. Take Authorization for Kaua‘i Lagoons 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 <sup>a</sup>
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

<sup>a</sup> Authorized level of take changed from 27 to 29 as processed under the September 2013 Minor Amendment

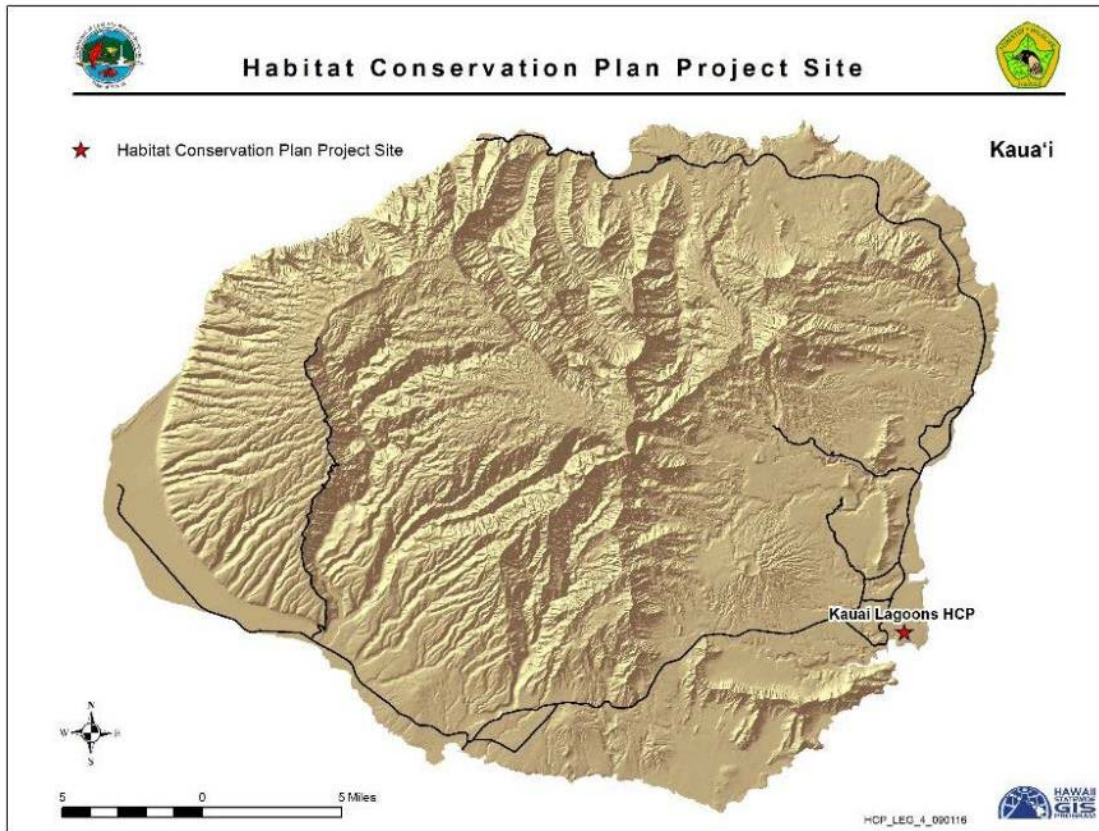


Figure 11. Location of Kaua‘i Lagoons HCP

**Status of ITL:** Table 25 provides a listing of all documented incidental take during the reporting period.

Table 25. Documented incidental take of Covered Species at the Kaua‘i Lagoons site during the reporting period.

Common Name	FY18 Fatalities
Hawaiian Moorhen	7

Table 26 provides the observed mortalities that have occurred since Kaua‘i Lagoons ITL issuance.

Table 26. Total observed incidental take since ITL issuance under the Kaua‘i Lagoons ITL as of June 30, 2018.

Common Name	Total Observed Take	Total Including Indirect Take
Newell’s Shearwater	3	3
Nēnē	2	4
Hawaiian Moorhen	15	20
Hawaiian Duck	5	7
Hawaiian Stilt	0	0
Hawaiian Coot	12	14

### ITL Status:

In accordance with the Kaua‘i Lagoons HCP, the Kaua‘i Lagoons Resort (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; and
- Program to minimize light-induced attraction of seabirds to Resort facilities by installing appropriate lighting fixtures, and implementing appropriate seasonal restrictions and practices.
- Maintenance of on-site nesting areas

The total number of Nēnē nests documented at Kaua‘i Lagoons during FY 2018 was span of 12, from 11 different pairs and which produced 23 fledglings. Over the span of FY 2018, an estimated 57 Nēnē were observed in addition to the 23 fledglings. Other covered species also nested in FY 2018 including 2 Hawaiian stilt nests producing 2 fledglings, 5 Hawaiian coot nests producing 5 fledglings, 13 Hawaiian duck nests producing 20 fledglings, and 39 Hawaiian moorhen nests producing 78 fledglings.

### 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 important habitat for endangered waterbird species, including predator control trapping and wildlife monitoring. Predator control efforts during this reporting period included 886 trap-days and resulted in the removal of 74 cats, 5 dogs, 1,011 chickens, and 45 bullfrogs. Kaua‘i Lagoons also contributed mitigation funding of \$85,000 to DOFAW in May 2012 to be used to conduct predator control and/or 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 of 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 account, to be held until such time as a Kaua‘i seabird island-wide HCP (currently in the planning stages) is finalized and 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

Take Authorization Over 10-year Term:



*Achyranthes splendens* var. *rotundata*.

Table 28. 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

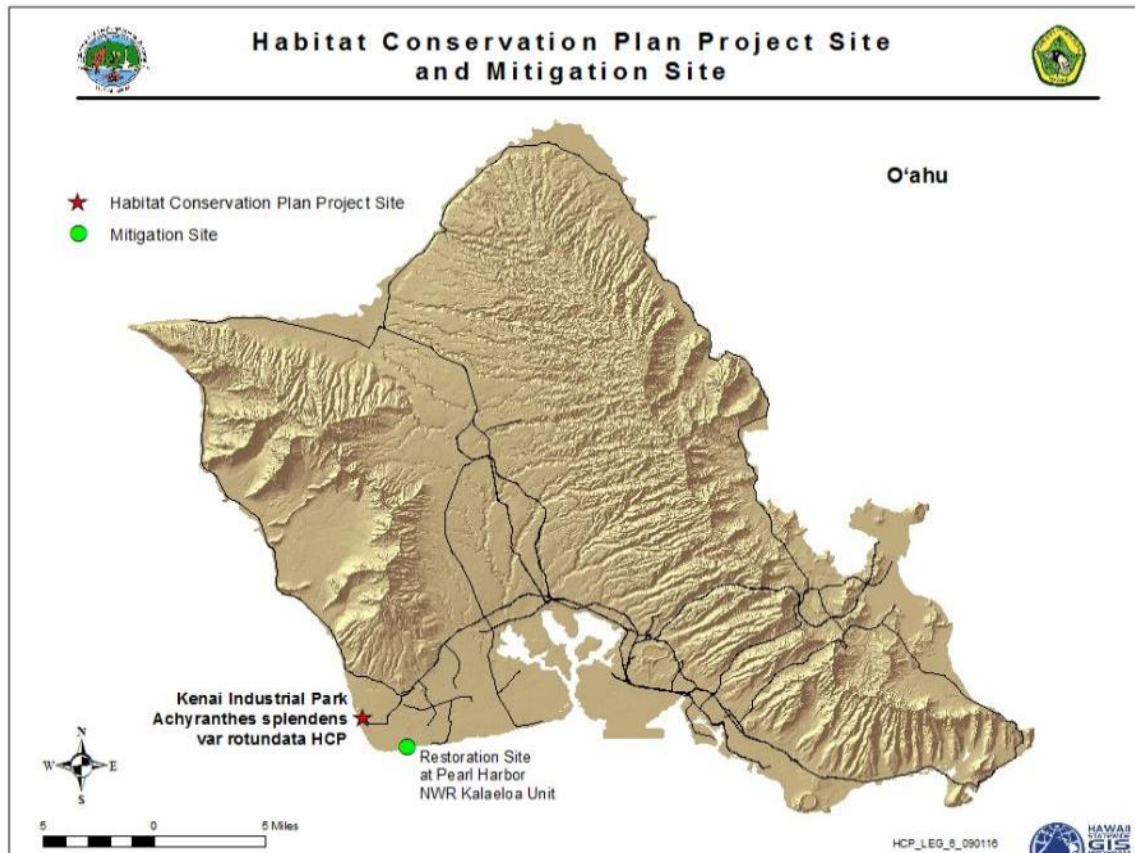


Figure 12. Location of Kenai Industrial Park HCP

Status of ITL: All plants at the site have been removed under 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 Ku Maoli Ola native plant nursery, the remainder are in

storage at the Lyon seed facilities. The seeds at Hui Ku Maoli Ola were propagated and were used for out-planting at the mitigation site.

Mitigation Status:

*Round-leaved Chaff Flower.* In accordance with the HCP, seeds were collected from the project site and 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.



*Plot 1 out-plants on 4/25/17*

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 (m) (39.5 × 39.5 feet). In addition, four individual plants of round-leaved chaff flower were planted outside of the Plots 1–4 in November 2014 and this area was designated Plot 5. As of April 12, 2018 there were 74 out-plants (47% of 159 planted) surviving, therefore the 75% survival by Year 4 criteria in the HCP has not been met. In all, 27 seedlings reached at least six inches in height in FY 2018, bringing the total number of progeny for the project to 47. Other success criteria specified in the HCP to be achieved by Year 5 are met as of this report including less than 25% cover of herbaceous non-native plants and more than 25% cover of native plants.

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 2018, AKC Leasing Corporation used their own procurement processes to fulfill HCP obligations.



**SUMMARY OF SAFE HARBOR AGREEMENTS AND ASSOCIATED INCIDENTAL TAKE LICENSES**

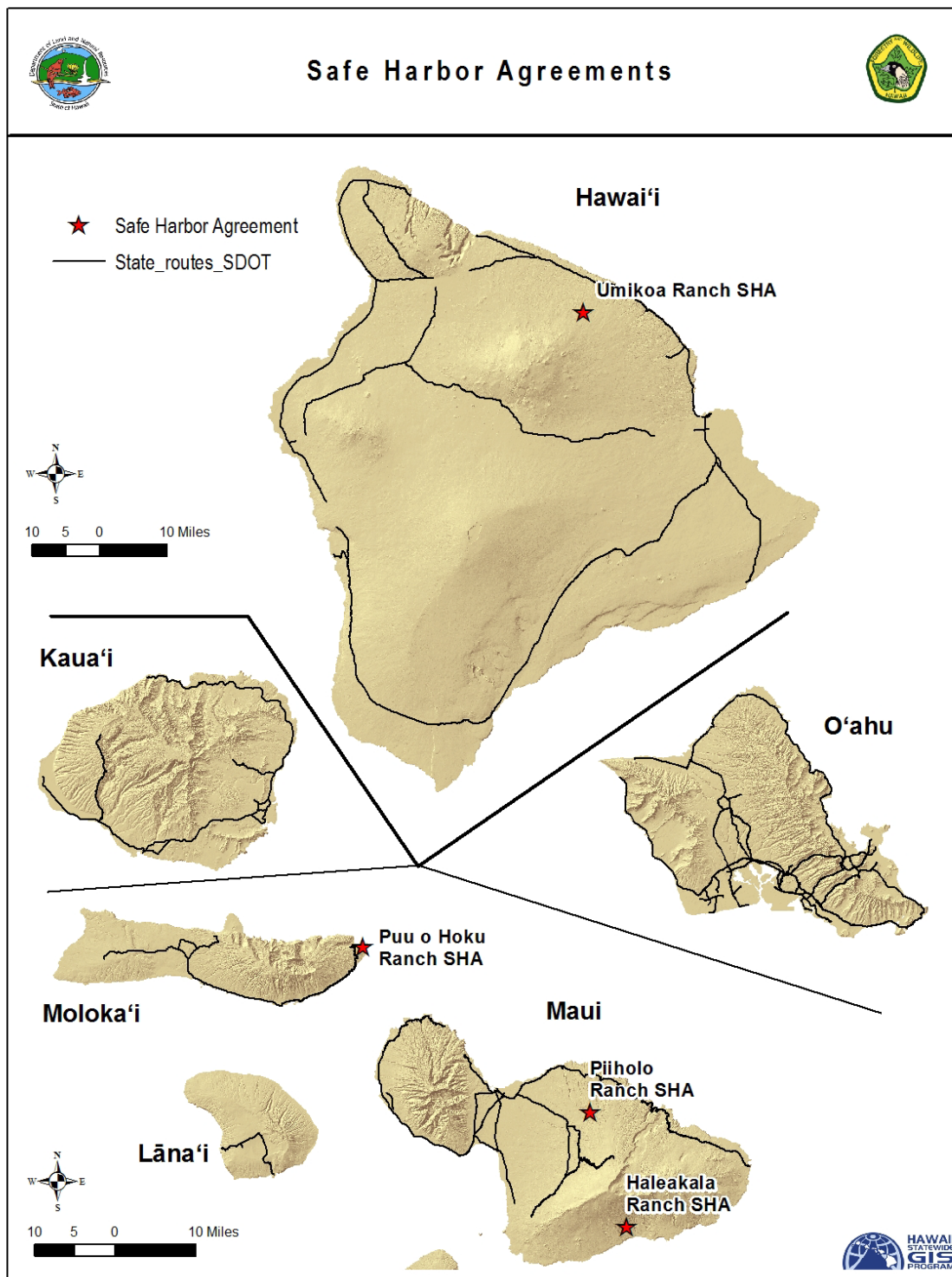


Figure 1. Location of Safe Harbor Agreements

***Safe Harbor Agreement for Pu‘u o Hōkū Ranch, Moloka‘i. Approved 2001.***

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 (DOFAW is currently in discussion with Pu‘u o Hōkū Ranch to enter into a new agreement).



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

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

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.

Status of ITL and SHA: One take of an adult female Nēnē occurred in FY 2018 from depredation by a cat while incubating her eggs. The SHA allowed for reintroduction of Nēnē on Pu‘u o Hōkū Ranch property, construction of a release pen, provision of habitat for Nēnē grazing and breeding, and control of predators in the release pen and breeding areas.

In FY 2018 Nēnē monitoring was performed on a weekly basis by DOFAW personnel throughout the reporting period. Observations from surveys throughout the reporting period resulted in a total of 28 birds, as identified by their State and Federal bands, which is the estimated population size. A one-day annual Nēnē survey of throughout Molokai was conducted on August 10, 2017 in which a total of 11 banded birds and one un-banded bird were observed.

A total of 74 birds were translocated to the Pu‘u o Hōkū Ranch from 2002-2005. Table 1 provides survey data for the original 74 birds translocated to the Pu‘u o Hōkū Ranch. The percentage of the original 74 birds that were re-sighted is a factor of survey effort and does not account for any unknown mortality or emigration from the ranch, and may not necessarily be a measure of translocation success.



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)
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

During the August – April nesting season a total of five nests were recorded within the open-top release pen at Puu O Hoku Ranch and no additional nests were located on the ranch or adjacent areas. One nest was successful producing two fledglings.

Maintenance at the three-acre open-top release pen included repair of electric fence and protective iron roofing around the fence-line, and mowing the half-acre around the pen. Ranch personnel mowed additional areas within the ranch. Additionally, 3.5 acres of alien vegetation was removed from the release pen by State personnel.

A total of 50 mongoose and five cats were removed around the open-top release pen at Pu‘u o Hōkū Ranch.

***Programmatic Safe Harbor Agreement for Nēnē on the Island of Moloka‘i, Hawai‘i. Approved 2003.***

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 occupy or breed 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: To be set in each landowner Cooperative Agreement.

Status of ITL and SHA: During the reporting period and to date, there are no landowners enrolled under this SHA; discussions with interested landowners are ongoing.

***Safe Harbor Agreement for the Introduction of Nēnē to Pi‘iholo Ranch, Maui.  
Approved 2004.***

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 period was from September 21, 2004 to September 20, 2014 (DOFAW is currently in discussion with Pi‘iholo Ranch to enter into a new agreement).



*Pi‘iholo Ranch on Maui.*

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

Baseline Condition: Following Nēnē reintroduction efforts on Maui that began at Haleakalā National Park in 1962, DOFAW began establishing a population in west Maui through a reintroduction program at Hana‘ula in 1995. However, prior to the development of the SHA, there had been no known Nēnē sightings at Pi‘iholo Ranch premises by DOFAW staff or Ranch personnel. Therefore the baseline condition was determined to be zero.

Status of ITL and SHA: No take of Nēnē was reported this year: The activities under the SHA were 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. Under the SHA Pi‘iholo Ranch was to maintain or improve approximately 600 acres of Nēnē habitat for a period of 10 years.

Nēnē monitoring recorded 31 banded birds on the Ranch throughout the reporting period, of which three were from the original released birds. The survey resulted in a population estimate for the Ranch of 34 birds.

Table 2 provides survey data for the original 48 birds released to the Ranch. The percentage of the original 48 birds that were re-sighted is a factor of survey effort and 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

<b>Year</b>	<b>No. of Birds Translocated</b>	<b>Total Birds Translocated</b>	<b>No. of Known Fatalities</b>	<b>No. of Birds Sighted</b>	<b>Percentage (%) of Translocated Birds Sighted (excluding known fatalities)</b>
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

During the breeding season 15 nests or nesting attempts were observed within the Pi‘iholo Ranch open-top release pen. Three nests were successful this year and produced three fledglings.

The open-top pen’s fence-line was continuously checked and maintained throughout the year. The fence was repaired and grass mowed at the open-top release pen and the pond was cleaned and flushed twice per month. Two closed top pens were installed in pen A to protect goslings from aggression from other families.

Predator control efforts resulted in a total of 25 mongoose, three rats, and two mice trapped and removed around the open-top release pen at Pi‘iholo Ranch.

***Safe Harbor Agreement for the Reintroduction of Nēnē to Haleakalā Ranch, Island of Maui. Approved 2012.***

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 was never finalized (DOFAW is currently in discussion with Haleakala Ranch to enter into an agreement).

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

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

Status of ITL and SHA: No take of Nēnē at Haleakalā Ranch was reported this year: Although a signed Haleakalā Ranch SHA is not yet in place, DOFAW in cooperation with Haleakalā Ranch has constructed a two-acre Nēnē release pen, conducts predator control activities around Nēnē nesting and breeding sites; and maintains access roads leading to the Nēnē release pen.

DOFAW conducted regular monitoring during the reporting period at Haleakalā Ranch. A total of 42 banded birds were recorded this season at the pen, of which 13 were from translocations. The estimated population for Haleakala Ranch is 51 Nēnē.

A total of 53 birds were translocated to Haleakalā Ranch between 2011 – 2016. Table 3 provides survey data for the original 53 translocated birds. The percentage of the original 53 birds that were re-sighted is a factor of survey effort and does not account for any unknown mortality or emigration from the ranch, and may not necessarily be a measure of release success.

Five other Nēnē were relocated to the open-top release pen at Haleakalā Ranch during this reporting period.

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)
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

Nine nests were found in the open-top release pens this season. Only one was successful and produced one fledgling.

Maintenance activities included checking and repairing fences as needed. The water unit was checked and maintained. The release pen and areas surrounding were kept mowed. Alien vegetation was removed from the pen. The pond was drained once a month and refilled with clean water.

Predator control efforts resulted in a total of three mongoose, one rat, and one mouse removed around the open-top release pen.

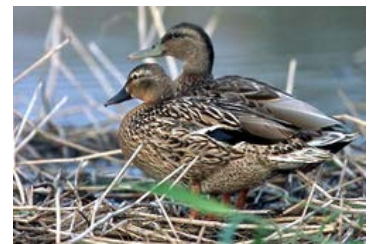
***Safe Harbor Agreement for the Koloa Maoli or Hawaiian Duck (Anas wyvilliana) and the Nēnē or Hawaiian Goose (Branta sandvicensis) on Umikoa Ranch, Island of Hawai‘i. Approved 2001.***

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.

ITL Duration: The ITL is valid from December 5, 2001 to December 4, 2100; the SHA period is 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 established baseline conditions.



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

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, in addition to five acres of adjacent upland habitat. Surveys indicated that the Umikoa wetland area was frequented by a single pair of wild Koloa. 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: Umikoa Ranch is responsible for maintaining fencing around ten ponds, consisting primarily of open water, and surrounding riparian and associated upland habitat totaling a minimum of 50 acres. Fences at two of the ponds were in need of repair based on a site visit in December 2018.

The fencing and maintenance of the ponds do provide Koloa and Nēnē habitat. Two Nēnē were reported using the ponds in the reporting period based on the state waterbird survey results for January 2018. No Koloa were observed. No non-native waterfowl were reported.

Four stray dogs were removed during FY 2018.

**CONDITION OF THE ENDANGERED SPECIES TRUST FUND**

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

<b>Description</b>	<b>Expenditure</b>	<b>Revenue</b>	
Beginning Cash Balance		\$ 4,017,282	
Outstanding Encumbrances FY2018	\$ 1,912,075		
Expenditures in FY2018	\$ 373,903		
Total in Encumbrances from previous years	\$ 284,299		
Funds to Implement Obligations of a Habitat Conservation Plan		\$ 1,368,141	
Private Contributions for the Management and Recovery of Hawaii's Native Wildlife		\$ 1,663,362	
<b>Subtotal Ending Balance</b>			<b>\$ 1,931,575</b>
<b>Total in Encumbrances</b>			<b>\$ 2,196,374</b>
<b>Total in ESTF in FY18</b>			<b>\$ 4,127,949</b>
Funds rolled over from previous years HCP Technical Assistance Program		\$ 73,856	
Funds Received as Payment for the Use of the HCP Technical Assistance Program		\$ 41,000	
<b>Total in ESTF (including outstanding encumbrances)</b>			<b>\$ 4,242,805</b>



## **RECOMMENDATIONS TO FURTHER THE PURPOSES OF CHAPTER 195D, HRS**

Habitat Conservation Plans and SHAs are necessary tools in Hawai'i to achieve endangered species protection while balancing growth and addressing the need for energy independence. FY 2018 marks the twentieth year since implementation of Chapter 195D, HRS, to include the issuance of ITLs. The program has demonstrated numerous successes over the last twenty years.

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

- Increase staff capacity statewide for HCPs by providing for a fully funded State civil service position to effectively track and monitor funds and expenditures related to each Habitat Conservation Planning project. The staff within DLNR/DOFAW is currently three members in administration managing statewide HCP and SHA projects and reviewing all projects statewide with the potential to impact threatened or endangered species. Additional staff are supported by grant to produce standalone HCPs. Additional staff capacity would allow 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 further educate private landowners and developers on the benefits of HCPs and SHAs.
- Provide resources to establish a habitat/conservation banking system as authorized under Section 195D-21(b)(1), HRS.
- 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:

Department of Land and Natural Resources  
Division of Forestry and Wildlife  
1151 Punchbowl Street, Room 325  
Honolulu, HI 96813  
Email: [James.M.Cogswell@hawaii.gov](mailto:James.M.Cogswell@hawaii.gov)  
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