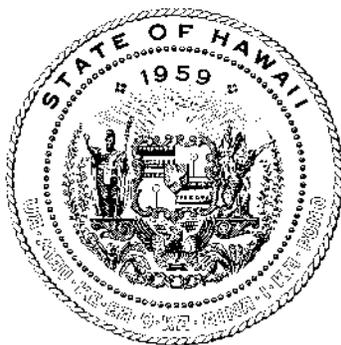


**REPORT TO THE THIRTIETH LEGISLATURE
STATE OF HAWAII
2020 REGULAR SESSION**

**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, 2018 – JUNE 30, 2019**



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 2019

**STATUS OF THE ISSUANCE OF
INCIDENTAL TAKE LICENSES FOR ENDANGERED, THREATENED,
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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 take¹ of threatened or endangered species, if such take is incidental to an otherwise lawful activity. Habitat Conservation Plans and Safe Harbor Agreements are important 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 reporting requirement for Fiscal Year (FY) 2019 and provides detailed information for 11 HCPs and six SHAs for which ITLs have been issued. One new ITL was issued in FY 2019 (April 30, 2019) for the Na Pua Makani Wind Energy Project HCP and one ITL concluded in FY 2019 (March 27, 2019) for the Daniel K. Inouye Solar Telescope Construction HCP. 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 HCPs are shown in Figure 1.

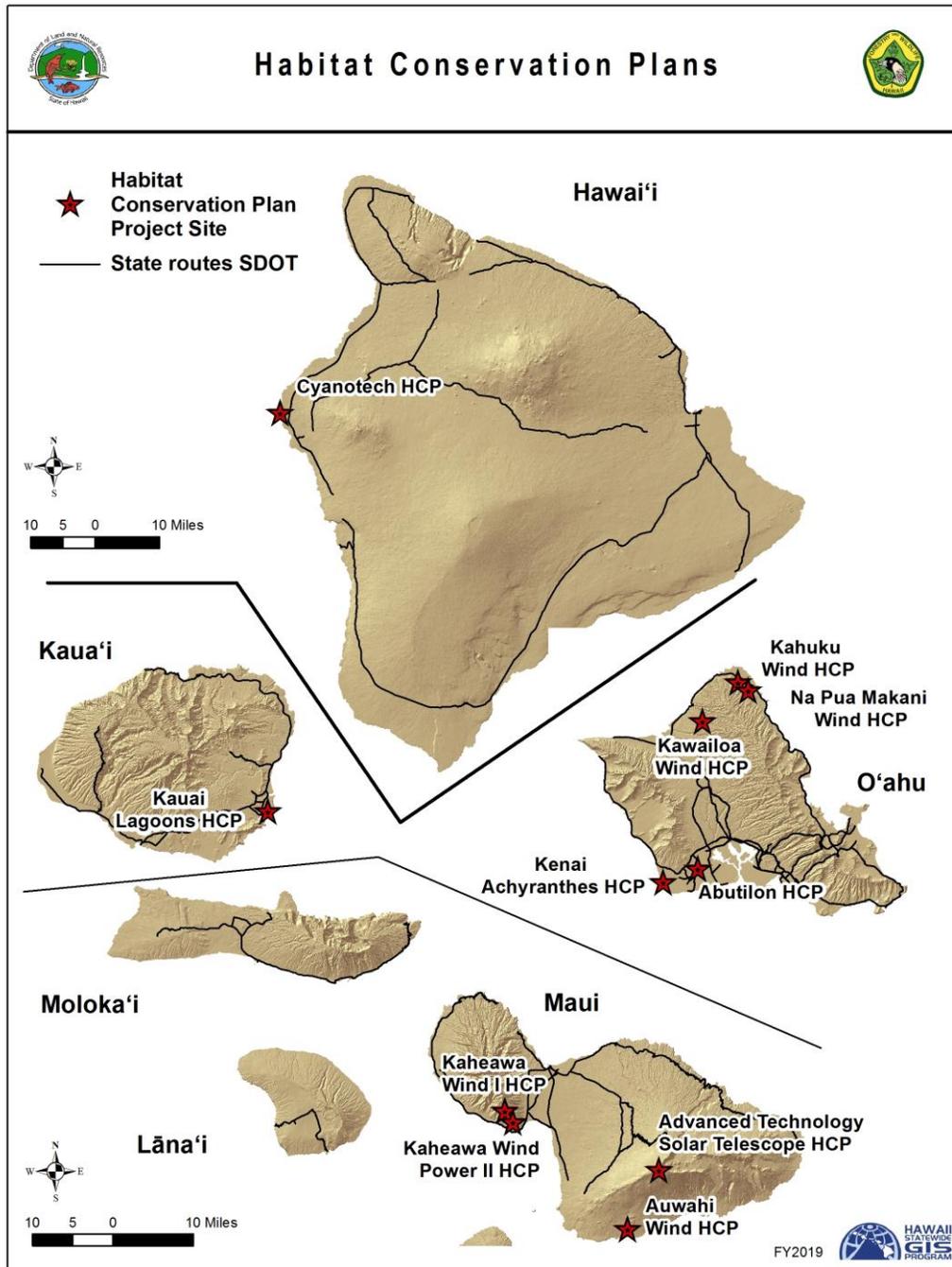


Figure 1. Habitat Conservation Plan Locations

A summary of permit status combining take of all Covered Species of wildlife since ITLs were issued is depicted in Figure 2a. The incidental take shown combines observed, modeled, and indirect take to estimate a total take as of the end of FY 2019. This summary shows that for all HCPs combined the total estimated take of Hawaiian Hoary Bats using an 80% upper confidence estimate is slightly below 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 2019 for the two HCPs that cover plant species. Those two HCPs permitted take of plants that occurred during a limited timeframe and do not have ongoing take.

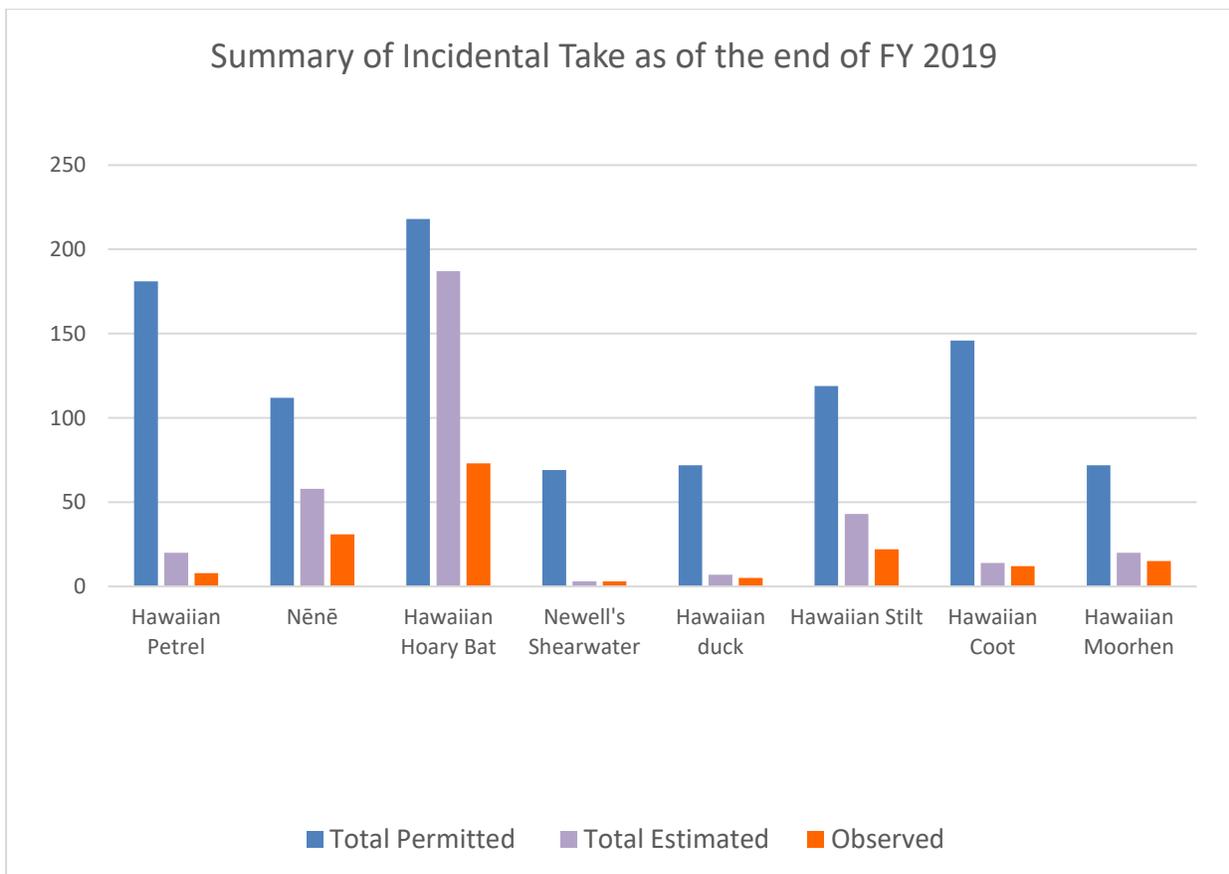


Figure 2a. Total permitted take, observed take, and estimated take (includes indirect take and, for wind energy sites, modeled unobserved take at the 80% upper confidence level) of HCP-covered wildlife species for all approved HCPs as of June 30, 2019.

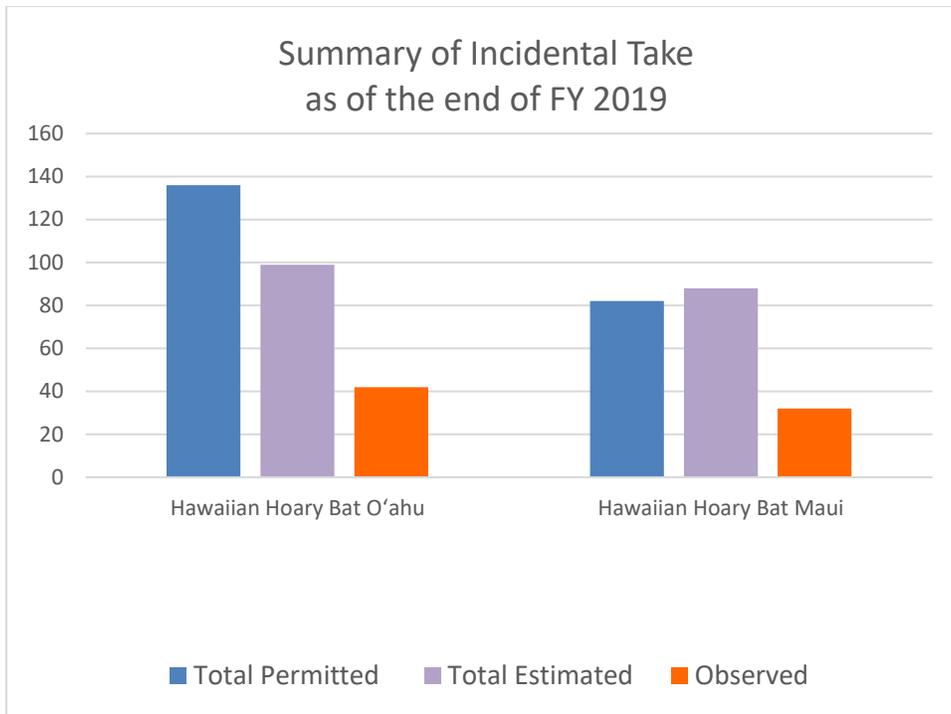


Figure 2b. Total permitted take, observed take, and estimated take (includes indirect take and, for wind energy sites, modeled unobserved take at the 80% upper confidence level) for the Hawaiian Hoary Bat for approved HCPs on O'ahu and Maui as of June 30, 2019.

**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 (as of end of FY 2019, 13.5 years (67.5%) through the permit term)



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

Take Authorization Over 20-year Term:

Table 1. Take Authorization 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 ^a

¹Take 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.

^aThis 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.

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

Common Name	FY19 Fatalities
Nēnē	2
Hawaiian Hoary Bat	1
Hawaiian Petrel	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.

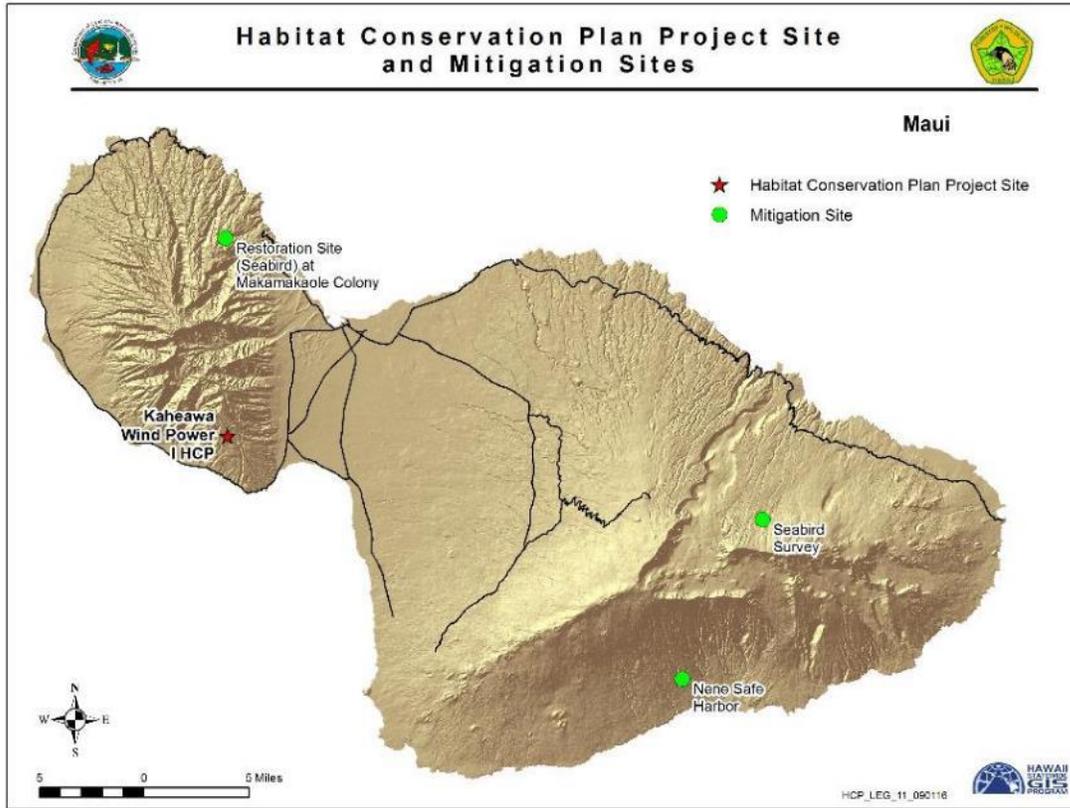


Figure 3. Location of Kaheawa Wind Power I HCP and Mitigation Sites

Table 3 provides an estimate of the overall total adjusted take that has occurred since KWP I ITL issuance. The take rate through FY 2019 for Nēnē is slightly above the rate that would keep the project under the permitted take. Take rates for the petrel and bat are below the rates that would exceed permitted take.

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 calculations for Hawaiian Petrel and Nēnē are 13.9 and 9.7 individuals, respectively (subject to rounding up). 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, all prior to FY 2019. 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, 2019.

Common Name	Total Observed Take ¹	Estimated Unobserved Take ²	Indirect Take using HCP multipliers	Total Estimated Take
Hawaiian Petrel	7	9	4	20
Nēnē	25	17	2	44
Hawaiian Hoary Bat	12	14	4	30

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.

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. Three species of seabirds, Hawaiian Petrel, Newell's Shearwater, and Bulwer's Petrel or 'Ou (*Bulweria bulwerii*), have frequented burrows within both enclosures between the months of March and October since June 22, 2015. Cameras have been in place at 11 nest boxes known to be visited. Only Newell's Shearwater and Bulwer's Petrel nesting activity has been observed in FY 2019.

Work in FY 2019 at Makamaka'ole included predator trapping and tracking, ongoing maintenance of both enclosures, artificial burrow checks, and game camera operation. A total of 82 traps were deployed at Makamaka'ole in FY 2019. A total of 57 mongooses, 50 rats, and five mice were captured. All of the mongooses were captured outside the enclosures while eight of the rats and all five mice were captured inside the enclosures. To understand the magnitude of the threat presented by barn owls in the area 25 surveys were conducted in FY 2019. Two owls were confirmed hit with shotgun loads, however removal was unconfirmed.

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).

Nene. Nēnē baseline mitigation continued through funding operation of the Haleakala Ranch pen in FY 2019 in conjunction with Kaheawa Wind Power II. Nēnē fledgling production in FY 2019 credited to KWP I and II was four goslings.

Hawaiian Hoary Bat. Baseline mitigation for 20 bats is complete. A mitigation project that will account for take of 15 of the authorized additional take of 30 bats began May 2017. This mitigation project consists of Hawaiian Hoary Bat ecological research in East Maui, contracted to H.T. Harvey Ecological Consultants. An annual report describing this research was pending at the time of this report. The contract total cost is \$750,000, and funding was completed with a payment of \$172,000 in FY 2019. The Project is also partially funding another Hawaiian Hoary Bat ecological research project on Hawai'i Island contracted to the U.S. Geological Survey Hawaiian Hoary Bat Research Group that began in FY 2018. The project contribution to this contract will be \$750,000 by mid-2021 and accounts for take of the remaining 15 bats of the amended total.

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 (as of end of FY 2019, 7.5 years (37.5 %) 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
‘Ōpe‘ape‘a or Hawaiian Hoary Bat ²	<i>Lasiurus cinereus semotus</i>	Tier 1	7 individuals	7 individuals
		Tier 2	11 individuals	11 individuals

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.

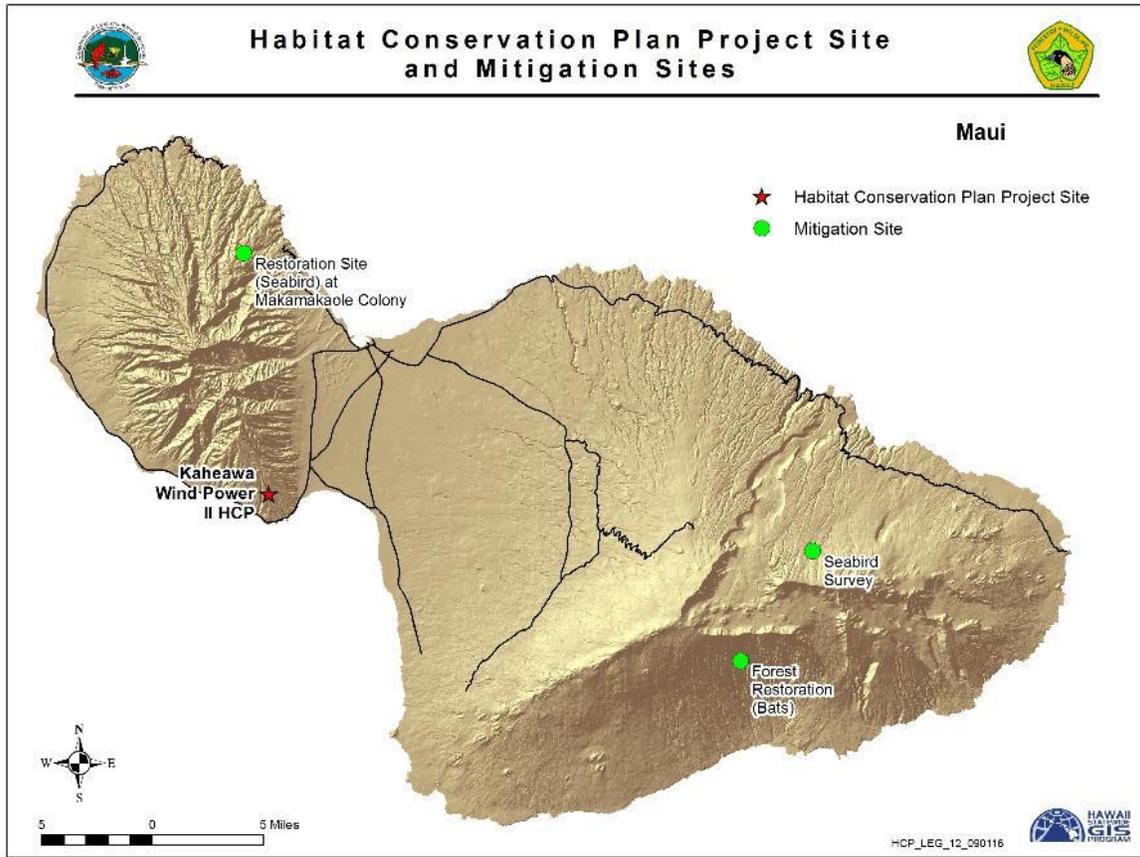


Figure 4. Location of Kaheawa Wind Power II HCP and Mitigation Sites

Status of ITL: Table 5 provides a listing of the HCP covered species fatalities during the reporting period. One Nēnē and one Hawaiian Hoary Bat fatality were observed in FY 2019. The Nēnē was found outside the designated search area. The bat was found incidentally by a worker and not on an official search.

Table 5. Documented fatalities of HCP covered species during the reporting period.

Common Name	FY19 Fatalities
Nēnē	1
Hawaiian Hoary Bat	1

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 6 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 3.2 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 70 meters centered on each WTG. Canine-assisted searching in

FY 2019 was the primary search method accounting for 100% of the downed wildlife monitoring searches.

Table 6. Total observed fatalities and estimated total take since ITL issuance covered under the KWP II ITL as of June 30, 2019.

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

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

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 15 Nēnē (with 80% statistical certainty and indirect take) is occurring at a rate that could exceed the total permitted take for the Nēnē. KWP II has submitted an amended HCP to the agencies for review and an approved amended HCP is expected in FY 2020.

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. Tier 1 mitigation for estimated seabird take at the project continues at the Makamaka’ole seabird enclosures. These efforts include trapping and monitoring for potential predators, maintenance of enclosure fences, erosion control, and monitoring seabird activity within the Makamaka’ole Stream drainage area and near artificial burrows within the enclosures. Site surveys of an alternative seabird mitigation site, as required by the HCP, were completed in East Maui in FY 2016.

Nēnē. Nēnē mitigation contracted to DOFAW for Tier 1 estimated take has been funded for two years and began March 2017. During FY 2019 KWP II provided part-year funding at the Pi’iholo Ranch Nēnē release pen, and part-year funding at the Haleakala Ranch pen in conjunction with KWP I. The Pi’iholo Ranch Nēnē pen produced 15 goslings in FY 2019, of which a proportion to be determined will be credited to KWP II. Nēnē fledgling production at Haleakala Ranch pen in FY 2019 credited to KWP I and II was four goslings.

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 continues as vegetation out-planting at Kahikinui State Forest Reserve. Mitigation for higher estimated take in the form of bat ecological research on Hawai’i Island has been contracted. This work is intended to better inform future bat habitat restoration and conservation and began in FY 2018 by the U.S. Geological Survey Hawaiian Hoary Bat research group.

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>.

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

ITL Licensee: Auwahi Wind Energy, LLC (owned by American Electric Power Company, Inc.)

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

ITL Duration: February 9, 2012 – February 9, 2037 (as of end of FY 2019, 7.5 years (30%) through the permit term)



Auwahi Wind Power, Maui

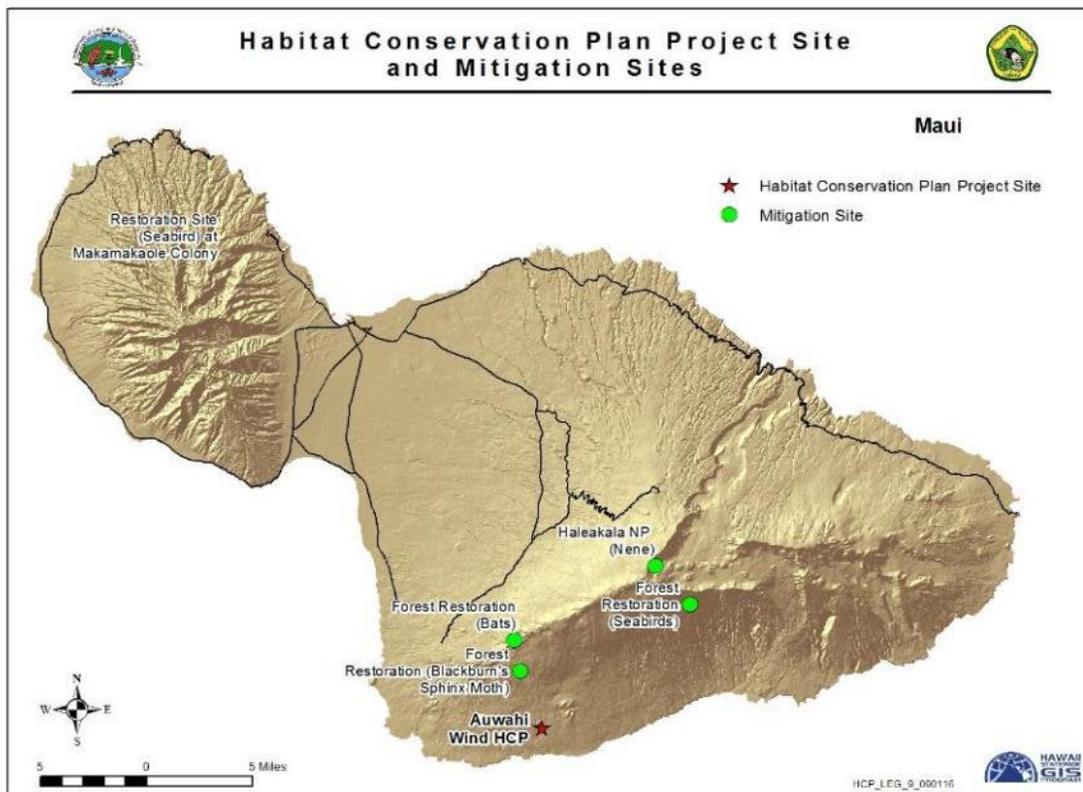


Figure 5. Location of Auwahi HCP and Mitigation Sites

Take Authorization Over 25-year Term:

Table 7. Take Authorization for Auwahi Wind HCP.

Common Name	Scientific Name	Level of Take	25-year Limit ⁸
‘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	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

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.

Status of ITL: Table 8 provides a listing of HCP covered species fatalities at the Auwahi Wind Energy facility during FY 2019. One Hawaiian Petrel and four Hawaiian Hoary Bat fatalities were observed in FY 2019. One of the Hawaiian Hoary Bats was found outside the designated search area. The Hawaiian Petrel take occurred at the petrel mitigation site.

Table 8. Documented fatalities of HCP covered species and species of concern at Auwahi during the reporting period.

Common Name	Scientific Name	FY19 Fatalities
Hawaiian Hoary Bat	<i>Lasiurus cinereus semotus</i>	4
Hawaiian Petrel	<i>Pterodroma sandwichensis</i>	1

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

Table 9. Total observed fatalities since ITL issuance and estimated total adjusted take covered under the Auwahi Wind Energy ITL as of June 30, 2019.

Common Name	Total Observed Take ¹	Estimated Unobserved Take ²	Indirect Take	Total Adjusted Take
Hawaiian Hoary Bat	20	26	4	50
Hawaiian Petrel	2	2	3	7

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.

The total estimated take of 46 bats (with 80% statistical certainty and indirect take) exceeded the total permitted take for bats. Auwahi Wind submitted an amended HCP and associated ITL to the agencies for review in FY 2019. The amended HCP was approved in FY 2020 and the adjusted take authorization will be reflected in the FY 2020 version of this report.

Mitigation Status:

Hawaiian Petrel. Mitigation for take of Hawaiian Petrels in FY 2019 (2018 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, 72 petrel burrows were being monitored, 31 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 were operational year-round. Trapping resulted in the removal of 70 mice, 45 rats, and one mongoose.

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. Restoration of this area included a perimeter fence and the removal of ungulates. The fence was inspected quarterly in FY 2019 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 FY 2019 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. The next vegetation monitoring will be conducted in FY 2020.

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, 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 2 for one year and results have been reported previously.

The final report was provided in FY 2019 for the Tier 3 bat mitigation study conducted by USGS in the Pu‘u Makua Restoration Area within the Waihou mitigation area. Results were reported for bat activity using ten acoustic monitoring stations and by evaluation of the insect prey base and food habits of the bat from March 2015 to March 2018. Bat activity was detected at all stations with the percent of nights with bat activity ranging from 49 to 98 percent, and higher levels of bat activity at the higher elevation Waihou monitoring stations.

A seasonal pattern of higher bat activity was observed during the bat birthing and pup rearing season from May to October at Waihou, and from July to October at the Auwahi wind turbines. The results demonstrated a lower nightly prevalence of bats and lower foraging activity in winter 2017 than in winter 2016, although inter-annual variability can be typical of acoustic surveys. Eleven bats of both sexes, including one lactating and two pregnant females, were captured in mist nets at the mitigation site and eight were radio-tagged. However, the site terrain and radio interference were not conducive for radio-tracking and data collected were not useful. Over 30

species and morpho-species of Lepidopterans (moths) were collected from malaise and light traps and sampling of vegetation, including restoration plantings, identified the presence of 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.

Results indicate a Lepidopteran and Coleopteran (beetle) prey base for bats currently exists in the Waihou vicinity, and within the Pu‘u Makua Restoration Area, and the detection of feeding buzzes at all sampling sites in Waihou indicates the area is used by foraging bats. Genetic analysis showed Lepidopterans as the primary component in the diet of bats captured at the Waihou mitigation area, with some bats’ guano samples composed entirely of moths, but a variety of other insect species were also consumed. Notably the pregnant females’ samples also contained proportions of less maneuverable prey such as beetles. The study confirmed the Hawaiian Hoary Bat is a feeding generalist consuming both native and non-native insect species.

Blackburn’s Sphinx Moth. Baseline mitigation for Blackburn’s Sphinx Moth 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 Blackburn’s Sphinx Moth. 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 2019 six tree tobacco (*Nicotiana glauca*) plants, a non-native invasive host plant for the moth, were removed from the wind farm site. No larvae were detected during visual surveys of tree tobacco in FY 2019.

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 2019, 9 years (45%) through the permit term)



Kahuku facility on the North Shore of O’ahu.

Take Authorization Over 20-year Term:

Table 10. 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	25 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 one or more of the following: 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 processed on November 26, 2014.

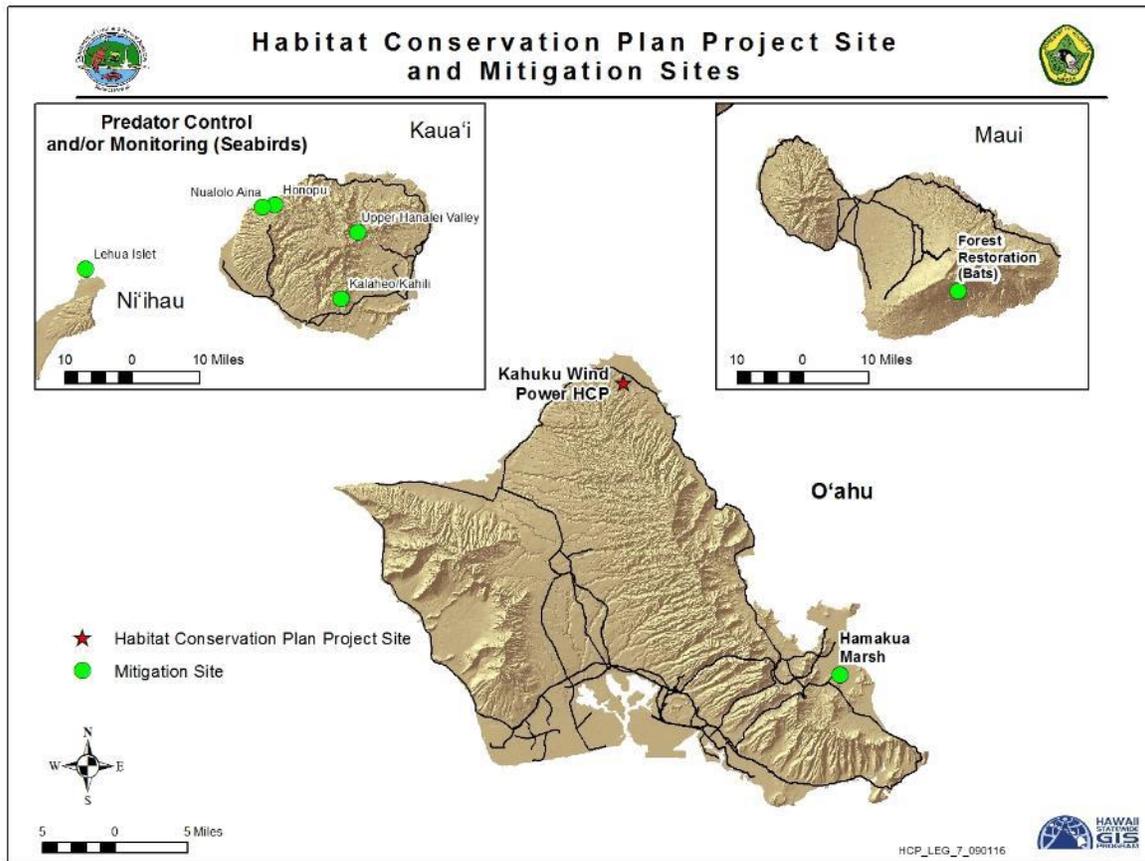


Figure 6. Location of Kahuku HCP and Mitigation Sites

Status of ITL: There were no fatalities of an HCP covered species at Kahuku Wind Power during FY 2019. There were no documented fatalities of species listed as threatened or endangered in Hawai‘i at the Kahuku Wind Power facility during the FY 2019 reporting period.

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, 2019.

Common Name	Total Observed Take	Estimated Unobserved Take ¹	Indirect Take using HCP multipliers	Total Estimated Take
Hawaiian Hoary Bat	4	5	2	11

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.

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 2019.

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 2019.



'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 2019.

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 2019 7.5 years (37.5 %) through the permit term)



Kawailoa Wind Power, O'ahu

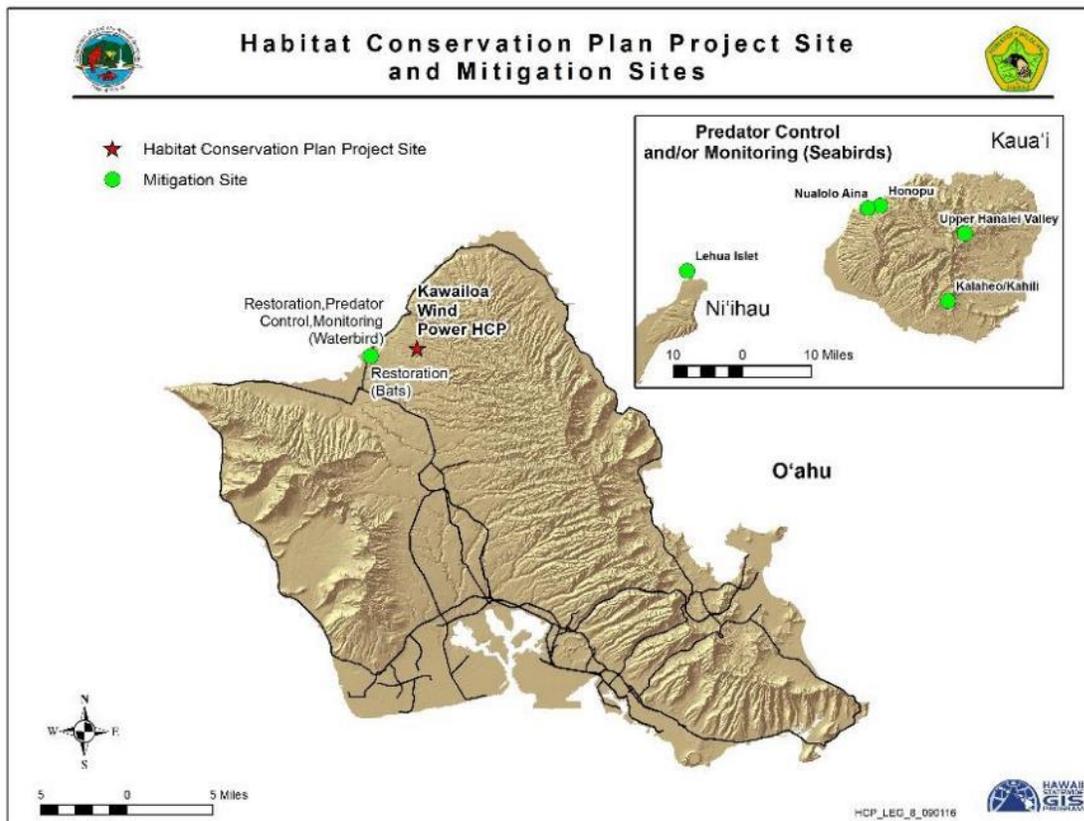


Figure 7. Location of Kawailoa HCP and Mitigation Sites

Take Authorization Over 20-year Term:

Table 12. Take Authorization for Kawaiiloa 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
'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
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

¹Take 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.

²Exceeding 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.

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

Status of ITL: Table 13 provides a listing of HCP covered species fatalities at the Kawaiiloa Wind Power facility during FY 2019.

Table 13. Documented fatalities of HCP covered species and one endangered species not covered at Kawaiiloa Wind Power during the reporting period.

Common Name	FY19 Fatalities
Hawaiian Hoary Bat	5
Hawaiian Petrel (<i>Pterodroma sandwichensis</i>)	1

Table 14 provides an estimate of the overall total adjusted take that has occurred since Kawaiiloa Wind ITL issuance.

Table 14. Total observed fatalities and estimated total take since ITL issuance under the Kawaiiloa Wind Power ITL as of June 30, 2019.

Common Name	Total Observed Take ¹	Estimated Unobserved Take ²	Indirect Take using HCP multipliers	Total Estimated Take
Hawaiian Hoary Bat	38	41	9	88

Hawaiian Petrel	2	ND	ND	ND
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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.

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 88 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 decision had not been made as of the end of FY 2019.

To minimize Hawaiian Hoary Bat take, in FY 2019 Kawailoa Wind reduced the number of turbine stop/start events per night by extending the rolling average time used from 10 to 20 minutes. Additionally, Kawailoa Wind installed acoustic deterrents at all 30 project turbines in May and June 2019.

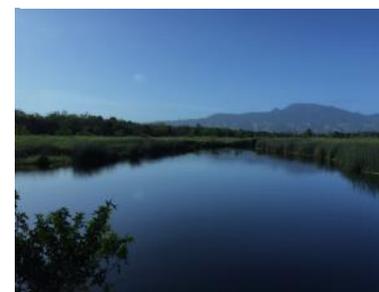
Mitigation Status:

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 2019, activities associated with Tier 1 included invasive vegetation removal, predator control, monitoring predator presence, and fence monitoring and maintenance. In FY 2019, a total of 192 predators were removed from 'Uko'a Wetland including 42 pigs, 136 mongoose, two cats, and 12 rats. A total of 41 weekly waterbird surveys were completed in FY 2019 at 'Uko'a Wetland and the Hawaiian Moorhen was the listed waterbird species most frequently detected during surveys. In FY 2019, moorhens were recorded at PC stations 3-8, but not stations 1 and 2. Moorhens (either adults or chicks) were observed or heard on all survey dates, except one survey date in August. No Hawaiian Coots were seen in FY 2019. Six detections of adult Hawaiian Stilts were made on two survey dates in FY 2019 (down from 27 on 11 survey dates in FY 2018). No Hawaiian Stilt breeding activity was observed in FY 2019.



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. A total of 16 bat lanes within 10 zones were cleared in previous years throughout ‘Uko‘a Wetland. Bat lane maintenance occurred in Q2 and Q4 of FY 2019 and consists of cutting branches and trees that regrow within the 5-meter wide bat lanes. Hawaiian Hoary Bats were detected on 466 of 3,373 detector-nights (13.8% of detector nights) at ‘Uko‘a in FY 2019. This represents a slight decrease from FY 2018, which documented detections on 14.7% of detector-nights. Bat activity appears to have increased at ‘Uko‘a Wetland since sampling began in 2012, with the highest detection rates occurring in the last two years of sampling (0.143 in FY 2018 and 0.138 in FY 2019) after aquatic vegetation was removed and bat lane construction began. Detection of feeding buzzes also increased after the mitigation.



Female Hawaiian Hoary Bat caught at ‘Uko‘a Wetland, Oahu.

Kawailoa Wind has contracted three studies as Tier 2/3 bat mitigation. The results of one USGS research project were published in an article titled “*Multi-state occupancy models of foraging habitat use by the Hawaiian hoary bat (Lasiurus cinereus semotus)*” in the Journal PLoS ONE in October 2018. The primary findings reported by Gorresen et al. (2018) include: 1) elevated levels of acoustic activity by Hawaiian Hoary Bats were found to be related primarily to beetle biomass, and 2) video-derived observations demonstrated higher and more accurate estimates of the prevalence of high bat flight activity and feeding events than acoustic sampling methods. The objectives of the USGS Hawaiian Hoary Bat Conservation Genetics study are to improve the understanding of the genetic diversity of the Hawaiian Hoary Bat, identify bat prey items, and identify the sex of bat carcasses and any sex-specific food habits. A technical report was published for this study in November 2018. During FY 2019, this research determined the sex of 88 Hawaiian Hoary Bat tissue samples using genotyping, which allows for more reliable evaluation of the ratio of males to females affected by collisions with wind turbines. The results indicate that 65% of observed fatalities at the sampled wind farms have been male. The third study, conducted by Western EcoSystems Technology Inc., is a multi-year Hawaiian Hoary Bat Acoustic Surveys study to examine the distribution and seasonal occupancy of the Hawaiian Hoary Bat on O‘ahu. The Year 1 Status Report for the study (covering results from June 8, 2017 to June 29, 2018) indicated highest detection frequencies in the northern Ko‘olau Mountains and the highest elevation areas of the Waianae Mountains.

Funding the above-listed Tier 2/3 studies leaves an outstanding obligation of \$353,702 for Tier 3 bat mitigation. To fulfill the remaining uncommitted funding obligation, Kawailoa Wind will contribute the remaining funds towards the purchase of the 3,716-acre Waimea Native Forest, an acquisition through a partnership that includes The Trust for Public Land and others.

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://www.pueoproject.com>.

**Na Pua Makani Wind Energy Habitat Conservation Plan,
O'ahu, Hawai'i. Approved 2019.**

ITL Licensee: Na Pua Makani Power Partners, LLC

Project: Up to nine WTGs with a total 25-MW energy generating capacity (not yet constructed as of end of FY19)

ITL Duration: April 30, 2019 – March 31, 2041



Na Pua Makani Power, Oahu

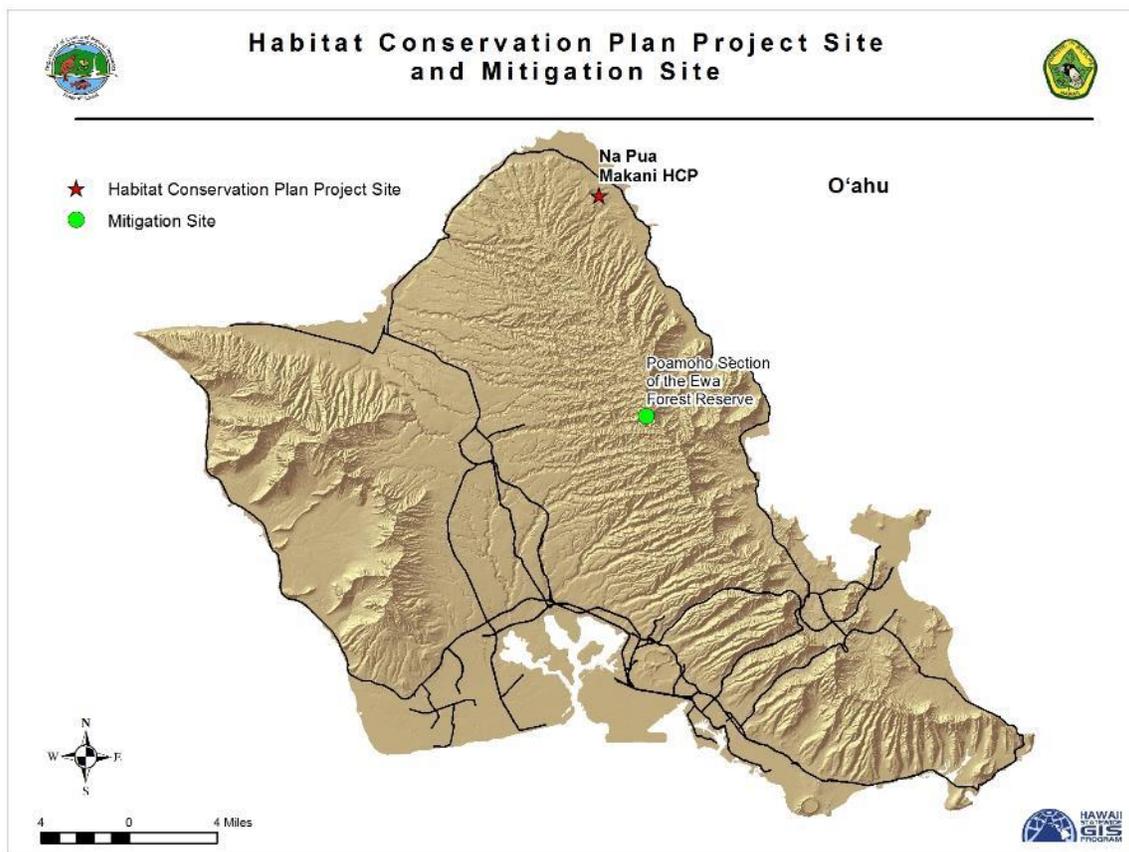


Figure 8. Location of Na Pua Makani HCP and Mitigation Site

Take Authorization Over 25-year Term:

Table 15. Take Authorization for Auwahi Wind HCP.

Common Name	Scientific Name	Level of Take	25-year Limit ⁸
'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	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

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.

Status of ITL: Project under construction. There are no takes to date.

Mitigation Status: Not started.

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 (as of end of FY 2019, 14.7 years (87.8 %) through the permit term)



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

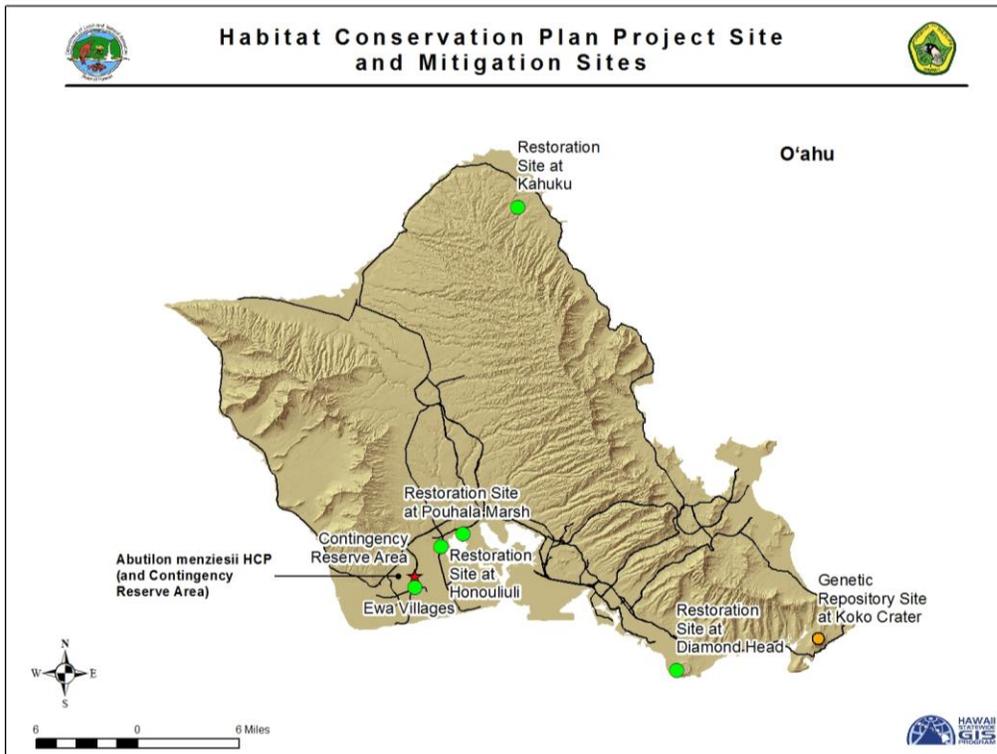


Figure 9. Location of *Abutilon* HCP and Mitigation Sites

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: 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 established in FY 2018 in the attempt to bring this species’ conservation efforts into current DOFAW projects with long-term project investment by the DOFAW O‘ahu 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. The main genetic reserve site established at Koko Crater Botanical Garden currently has 90 mature plants (60% 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. In FY 2019 the Contingency Reserve Area population has 35 individual plants, a decline from 68 mature (reproductive) *A. menziesii* plants present in FY 2018. From an original founder population of 93 plants on the project site in 2002, out-planting efforts have resulted in establishment of 361 (down from 499 in FY 2018) 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. No new plants were out-planted during the reporting period. 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 17. Summary of Revenue and Expenditures for the *Abutilon menziesii* HCP at Kapolei.

Description	
Available revenue	\$66,276
Expenditures in FY19	\$66,276
Ending balance	\$0

While the mitigation funds have been exhausted, DOFAW is committed to managing the project through the remaining ITL term, and during FY 2019 actively sought discussions with the license-holder on achieving the HCP’s success criteria.

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

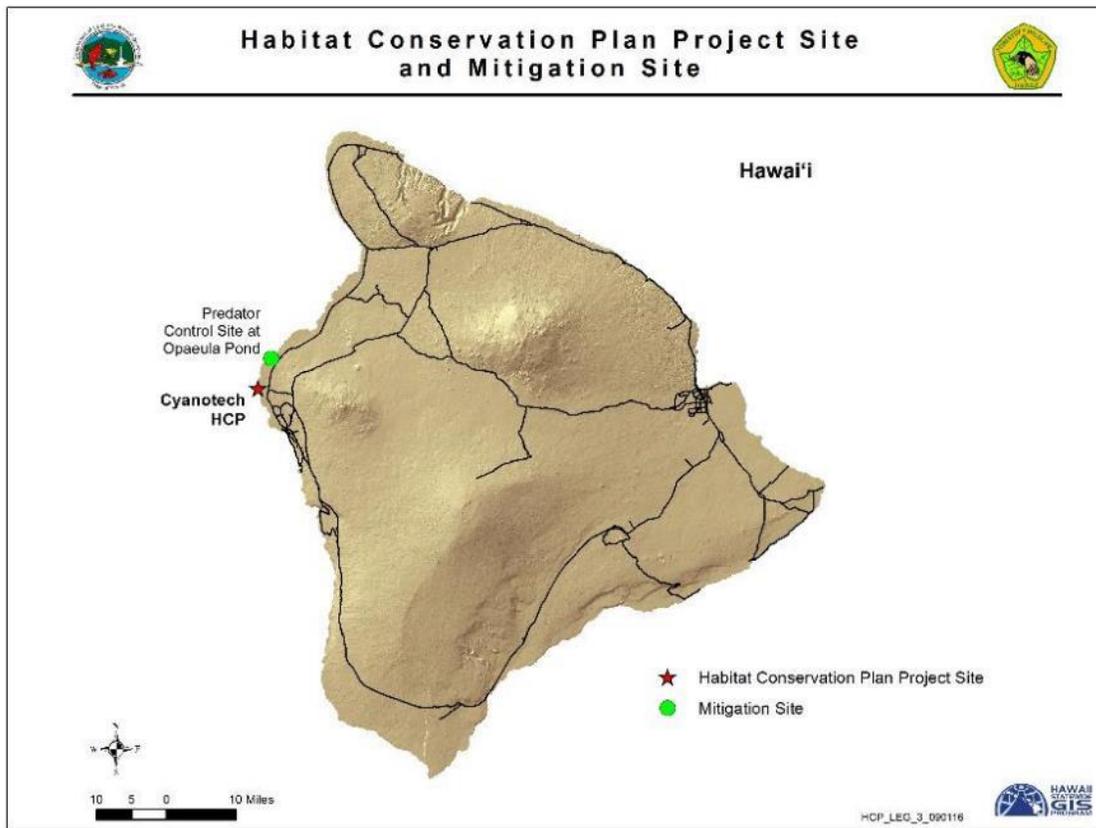


Figure 10. Location of Cyanotech HCP

Take Authorization Over 13-year Term:

Table 18. 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 ¹
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 2019. There were no documented fatalities of species listed as threatened or endangered in Hawai‘i at the Cyanotech facility during the FY 2019 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 Hawaiian Stilt nests with four eggs in each nest. One nest was flooded and abandoned after a heavy rain event. The second nest successfully produced two fledglings.

Table 19 provides an estimate of the overall total adjusted take that has occurred since Cyanotech ITL issuance.

Table 19. 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, 4 chicks	43 fledglings

¹ 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 the ITL 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. The ITL was terminated early with final approval on March 27, 2019 through authorization by the Board of Land and Natural Resources at its March 23, 2018 meeting

Take Authorization Over 10-year Term:

Table 20. 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

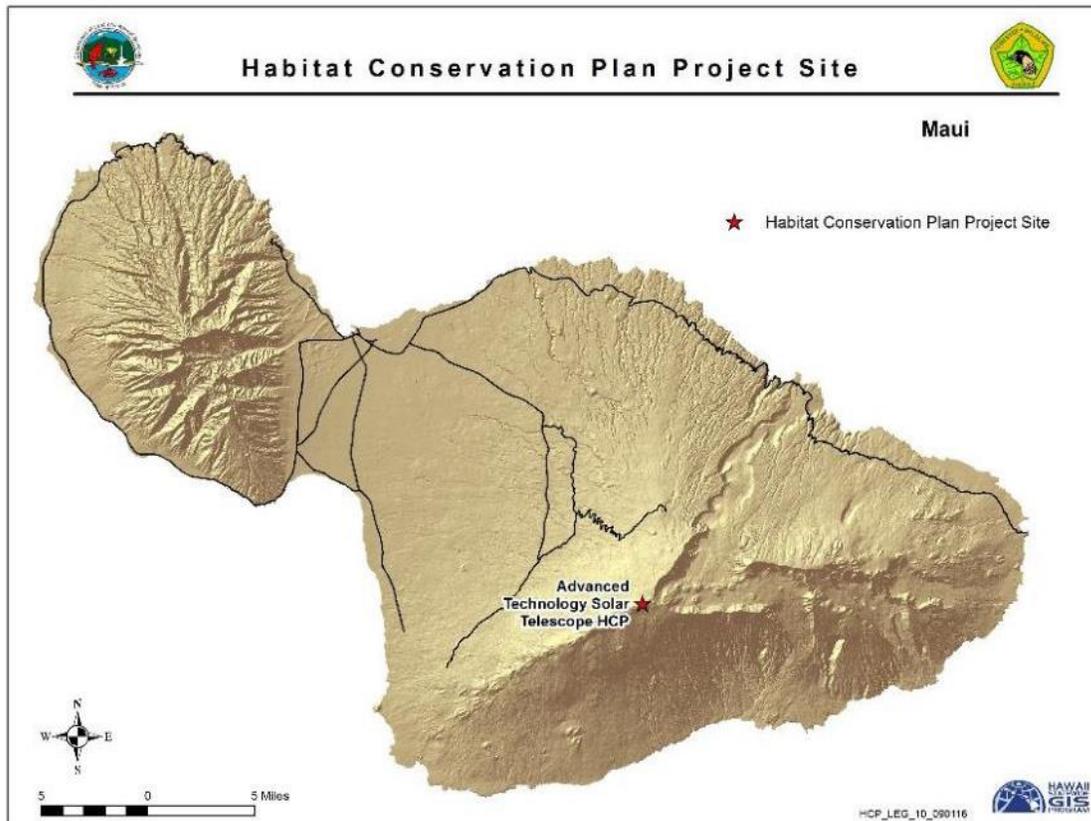


Figure 11. Location of the Daniel K. Inouye Solar Telescope HCP (formerly known as the Advanced Technology Solar Telescope HCP)

Status of ITL: There were no fatalities of an HCP covered species or species listed as threatened or endangered in Hawai‘i at DKIST during FY 2019. No Hawaiian Petrel collisions have been recorded during monitoring since beginning the project in 2011. A project closeout report was submitted dated January 2019. As stated in the report, there has been no “take” as a result of the exterior construction of the DKIST project or from implementation of the 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 were detected since bird-strike monitoring began in 2011. Noise and vibration monitoring were also conducted during construction, mostly completed as of early March of 2016, to determine if the burrows nearest the construction site were impacted by construction activities. Based on measurements, no impacts were documented.

Table 21. 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 for the *Hawaiian Petrel* at the Termination of the HCP/ITL:

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.

Ungulate/Predator Control was completed as follows:

- No ungulate populations have reestablished inside the fenced Conservation Area since September 12, 2013, shortly after fence construction began.
- An estimated total of 829 rodents have been removed by long-term rodent control grid traps and rodenticide.
- In the 12 seasons since the stage three grid system was installed, the long-term rodent control grid has reduced the rodent density in the Conservation Area to 5.8% of the Control Site level.
- Overall, based on calculations the predation of 29 chicks and 16 adult Hawaiian Petrels was prevented due to the predator control measures implemented by DKIST.

The petrel fledgling success as a result of mitigation actions were as follows:

- A statistically significant increase of 74% in fledgling success—the percentage of active burrows that successfully fledged a chick—after the conservation measures were implemented in the Conservation Area, compared to fledgling success rates at the site before the implementation of conservation measures.

- The average annual Hawaiian Petrel productivity, that is, the number of successful burrows present in the Conservation Area, increased 87%.
- Using a density approach, mitigation measures facilitated a significant increase in the Hawaiian Petrel fledging rate on average by 21 more successful fledglings annually (or 105 more total) successful fledglings between 2014 and 2018.
- An increase of the Hawaiian Petrel population in the Conservation Area of 96 additional fledglings than would have been expected without mitigation between 2014 and 2018, determined by comparing fledgling success rates pre- and post-mitigation efforts.

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 holding the license)

Project: Oceanfront resort encompassing approximately 600 acres

ITL Duration: April 11, 2012 – April 11, 2042 (as of end of FY 2019, 7.2 years (24%) through the permit term)



Kaua'i Lagoons, Kaua'i.

Take Authorization Over 30-year Term:

Table 22. 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 ^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

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

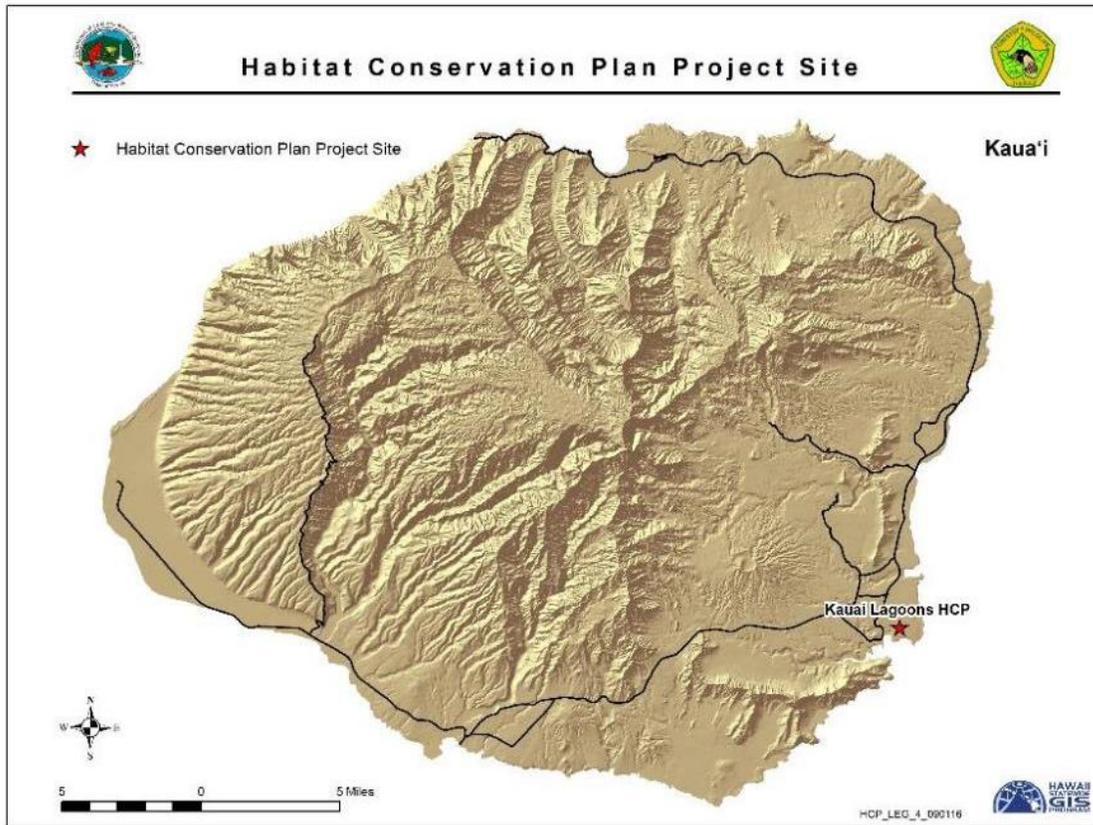


Figure 12. Location of Kaua‘i Lagoons HCP

Status of ITL: Table 23 provides a listing of all documented incidental take during the reporting period.

Table 23. Documented incidental take of Covered Species at the Kaua‘i Lagoons site during the reporting period.

Common Name	FY 2019 Fatalities
Newell’s Shearwater	4
Nēnē	1
Hawaiian Moorhen (Common Gallinule)	3
Hawaiian Coot	3

Table 24 provides the observed mortalities that have occurred since Kaua‘i Lagoons ITL issuance. Of concern is the rate of Hawaiian Moorhen take. Although only 24% of the license term is complete, 62% of the permitted Hawaiian Moorhen (lethal) take has been reached as of the end of FY 2019.

Table 24. Total observed incidental take since ITL issuance under the Kaua‘i Lagoons ITL as of June 30, 2019.

Common Name	Total Observed Take	Total Including Indirect Take
Newell’s Shearwater	7	7
Nēnē	3	5
Hawaiian Moorhen	18	25
Hawaiian Duck	5	7

Common Name	Total Observed Take	Total Including Indirect Take
Hawaiian Stilt	0	0
Hawaiian Coot	16	19

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;
- 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.

The total number of Nēnē nests documented at Kaua‘i Lagoons during FY 2019 was 20, from 19 different pairs and which produced 38 fledglings. Other covered species also nested in FY 2019 including three Hawaiian Coot nests producing six chicks, seven Hawaiian Duck nests producing 47 chicks, and 21 Hawaiian Moorhen nests producing 62 chicks (not all chicks will fledge).

The average number of individuals of each species observed during 45 waterbird counts was as follows: Nēnē, 53; Hawaiian Duck, 21; Hawaiian Moorhen, 85; Hawaiian Coot, 123, Hawaiian Stilt, four.

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 deploying up to 63 live traps on the property. Live traps were deployed throughout the year and were placed in areas in response to sightings of mammalian predators, and checked daily.

Trapping resulted in the removal of 54 cats, 39 pigs, and two dogs. Additionally, 1,375 chickens were removed using air rifles. 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

(NFWF) account, to be held until such time as a Kaua‘i seabird island-wide HCP is finalized and approved. On August 22, 2018, \$10,000 was provided to NFWF to cover the remainder of the 2018-2019 season.

**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 2019, 5.37 years (54 %) through the permit term)



Achyranthes splendens var. *rotundata*.

Take Authorization Over 10-year Term:

Table 25. 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

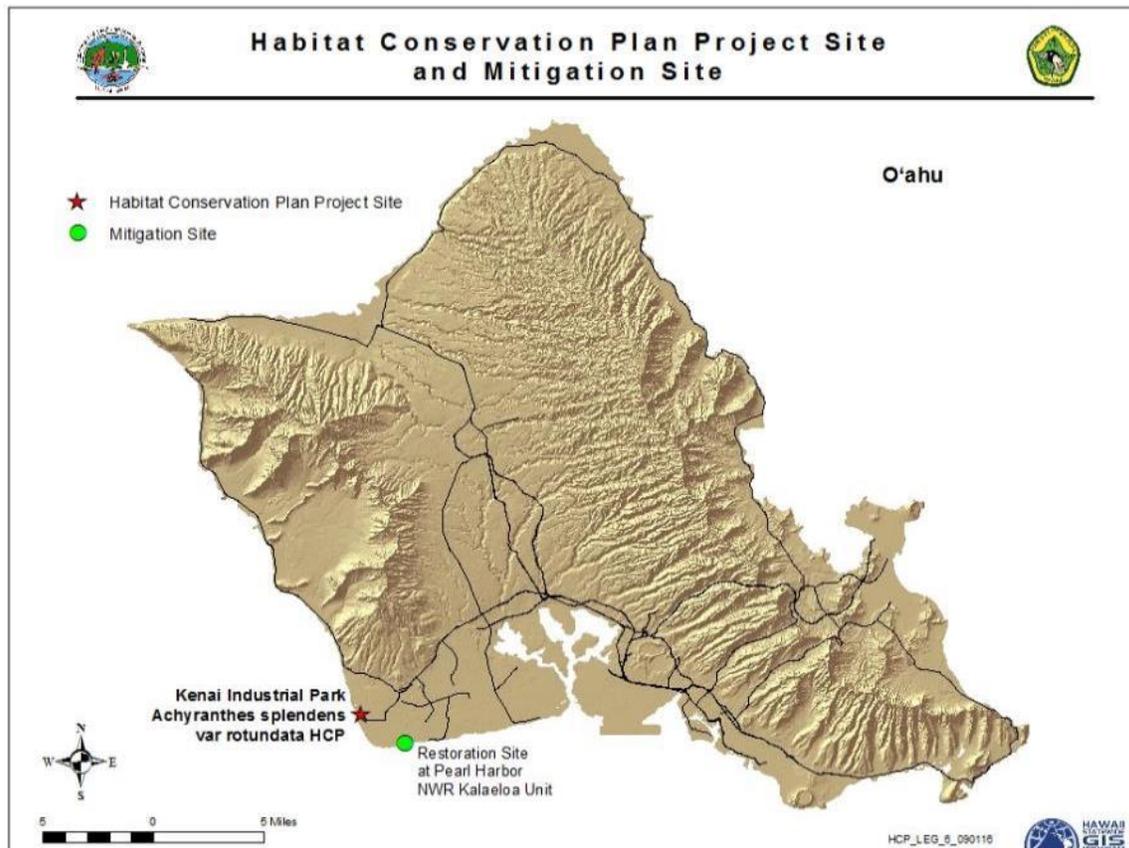


Figure 13. Location of Kenai Industrial Park HCP

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 (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 10, 2019 there were 50 out-plants (31% of 159 planted) surviving, therefore the 75% survival by Year 5 criteria in the HCP has not been met. In all, 33 seedlings reached at least six inches in height in FY 2019, bringing the total number of progeny for the project to 79. All 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.

Reports on the life expectancy of Round-leaved Chaff Flower 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 time period.

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 2019, AKC Leasing Corporation used their own procurement processes to fulfill HCP obligations.

SUMMARY OF SAFE HARBOR AGREEMENTS AND ASSOCIATED INCIDENTAL TAKE LICENSES

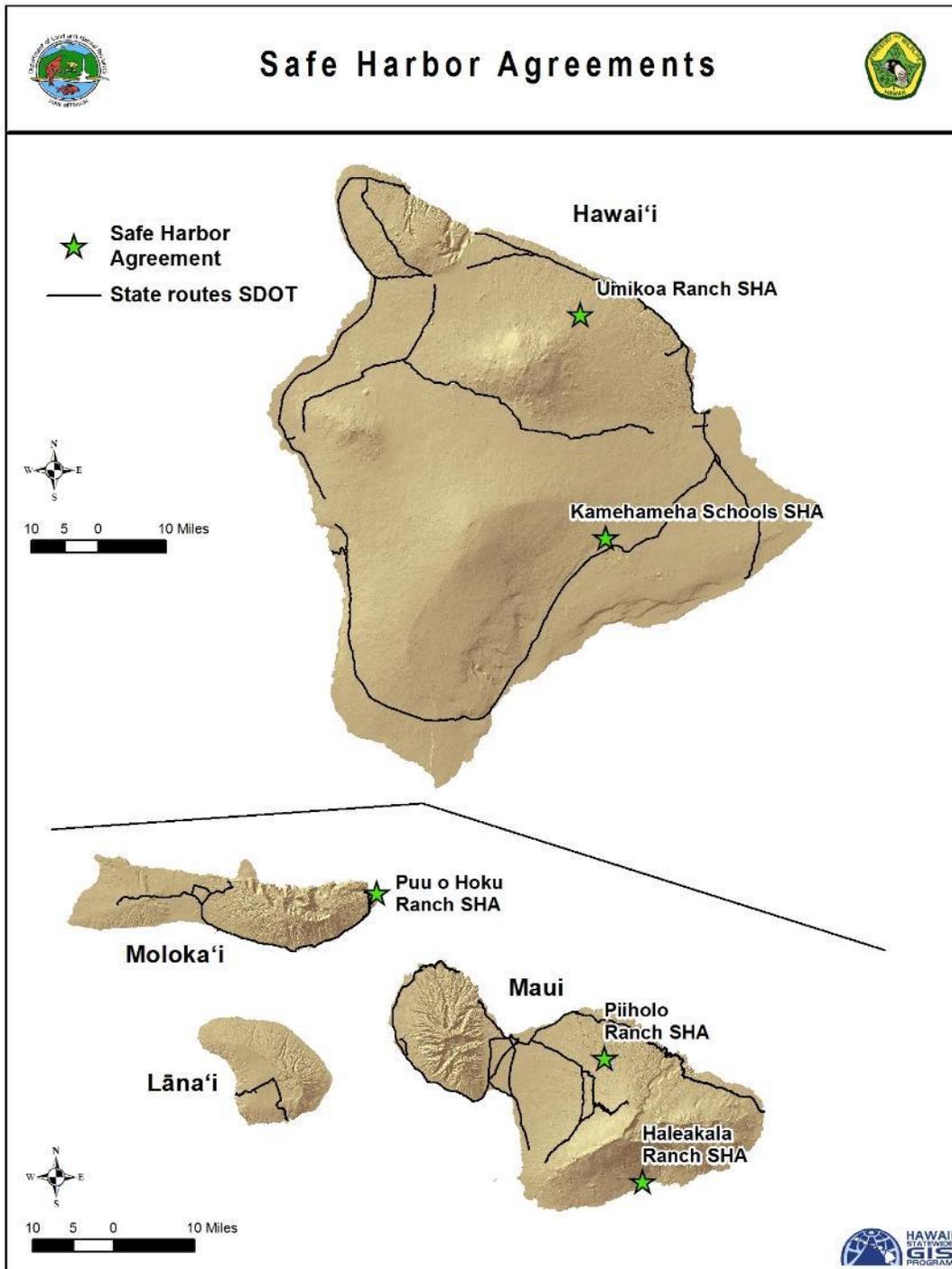


Figure 1. Location of Safe Harbor Agreements

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

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. 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.

Status of ITL and SHA: There was not take of Nēnē at Pu‘u o Hōkū Ranch this fiscal year. In FY 2019 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 27 birds, the estimated population size, of which 25 were identified by their State and Federal bands. A one-day annual Nēnē survey of throughout Molokai was conducted on August 10, 2017 in which a total of 21 banded birds were observed.

During the August – April nesting season two nests were recorded within the open-top release pen at Pu‘u o Hōkū Ranch and no additional nests were located on the ranch or adjacent areas. Both nests were successful with each producing two fledglings and all four were banded.

Maintenance at the three-acre open-top release pen included checks and repairs as necessary of electric fence and watering units, and mowing the half-acre around the pen. Ranch personnel mowed additional areas within the ranch. Alien vegetation (Christmas Berry, Haole Koa, and Sour Grass) was removed from the pen. Mowing by DOFAW staff totaled 59.5 acres. Ranch personnel mowed an additional 900 acres within the ranch. Additionally, six acres along the fenceline was mowed and maintained.

A total of 38 mongoose and one cat were removed around the open-top release pen at Pu‘u o Hōkū Ranch.

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)
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 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.

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.



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. Under the SHA Pi‘iholo Ranch was to maintain or improve approximately 600 acres of Nēnē habitat for a period of 10 years.

Status of ITL and SHA: There was not take of Nēnē at Pi‘iholo Ranch this fiscal 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. There were 17 nests or nesting attempts at the open-top release pen this past season and seven were successful. Fifteen Nēnē fledged from the open-top release pen and 13 were banded.

Nēnē monitoring recorded 37 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. An island-wide annual Nēnē survey was conducted on September 19, 2018. During this survey, 18 birds were observed.

The open-top pen’s fence-line was continuously checked and maintained throughout the year. The fence was maintained at the open-top release pen and the pond was cleaned and flushed twice per month. Short grass habitat was maintained at the pen through weekly mowing and the

area around the outside of the pen was maintained as needed. A total of 25.5 acres was mowed this year to maintain Nēnē short grass habitat.

Predator control efforts resulted in a total of 48 mongoose, three rats, and 12 mice trapped and removed around the open-top release pen at Pi‘iholo Ranch.

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

Year	No. of Birds Translocated	Total Birds Translocated	No. of Known Fatalities	No. of Birds Sighted	Percentage (%) of Translocated Birds Sighted (excluding known fatalities)
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 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 fiscal year. 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 47 banded birds were recorded this season at the pen, of which 10 were from translocations. During the September 2018 survey 25 Nēnē were observed, which included 22 banded birds and three unbanded birds. Three Nēnē that were injured birds that were captured, treated, and relocated to the pen. Four Nēnē, three adults and one gosling, died this year at the pen.

Seven nests were found in the open-top release pens this season and two were successful with two fledglings each for a total of four fledglings.

Maintenance activities included checking and repairing fences as needed. The water unit was checked and maintained monthly. The pond was drained once a month and refilled with clean water. Twenty-six acres were kept mowed in and around the pen to maintain short grass habitat and alien vegetation removed.

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

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.

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)
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 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.

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: No take of covered species was reported at Umikoa Ranch this past fiscal year. The ranch is responsible for maintaining fencing around 10 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.

During state waterbird surveys in January 2019 (four ponds) and August 2019 (three ponds), no native or non-native waterbirds were observed.

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

<u>Common Name</u>	<u>Scientific Name</u>	<u>Incidental Take Permitted No. of Individuals or Habitat</u>	<u>Baseline Individuals or Habitat</u>
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
‘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: In FY19, a total of 20,295 native plants of 28 species were planted. Of these 11,596 were koa seedlings. It included 343 native seedlings planted in the sensitive Forest Bird Stratum 1 and 19,952 in the remainder of the Enrolled Property. Planting areas were concentrated in the lower portions of the Enrolled Property where silviculture activities included 135 acres of new koa located in the 2018 wildfire burn area in the southwestern portion of the

property. The Kīlauea and East Rift Zone eruption did disrupt some of the planned plant propagation and activities.

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 ft firebreak was installed along the property boundary with National Park. A total of 2 acres of closed- and 238 acres of open-canopy tree cover habitat with a mix of koa and ‘ōhi‘a canopy were lost in the fire and other areas included scattered and very scattered trees. Kamehameha Schools ascribed the wildfire to a force majeure event beyond their control.

Weed surveys by Three Mountain Alliance (TMA) were conducted on 7,596 acres and suppression occurred across 2,024 acres and targeted priority weed species Faya (*Morella faya*), Ginger (*Hedychium gardnerianum*), Strawberry Guava (*Psidium cattleianum*), and Himalayan Raspberry (*Rubus ellipticus*), as well as Blackberry (*Rubus argutus*). Existing populations of priority weed species was below 10% within conservation fences that is a criterion specified in the SHA. Kamehameha Schools provided access of the enrolled lands to the U.S. Forest Service for researchers monitoring the presence, patterns, and impacts of Rapid Ōhi‘a Death (ROD).

Monitoring in FY 2019 included a bird survey for the covered species. Results are as follows:

Name	Scientific Name	2019 # Detected
‘Akiapōlā‘au	<i>Hemiganthus wilsoni</i>	40
‘Ākepa, Hawai‘i ‘Ākepa	<i>Loxops coccineus</i>	1
‘Alawī, Hawai‘i Creeper	<i>Loxops mana</i>	21
‘Io, Hawaiian Hawk	<i>Buteo solitarius</i>	4
‘I‘iwi	<i>Drepanis coccinea</i>	181

‘Alalā from the 2017 and 2018 release cohorts have shown consistent use of Kamehameha Schools lands with activity being focused around the Pu‘u Kipu area during the morning and evening hours (AWG 2018, AWG 2019). To date, ‘Alalā have not demonstrated behavior indicating occupation of habitat on Kamehameha Schools lands such as nest construction or defense of habitat.

Up to six Nēnē were observed during monthly surveys in the western portion of the enrolled property and up to nine at the ‘Ōhi‘a Ranch portion. Nests and fledglings were not observed but fledglings including up to near adult size were captured on remote cameras. These are the first fledglings documented from the enrolled property.

Plant monitoring of covered species was conducted in FY 2019 through contract with the Hawai‘i Plant Extinction Prevention Program (PEPP). Preliminary results indicate that several covered plant species have declined in number including *Phyllostegia racemosa*, *Cyanea shipmanii*, and *Vicia menziesii*. However, some regeneration of the latter two species was documented, though final results were pending at the time of this report.

Kamehameha Schools also initiated an extensive training program in association with TMA and PEPP on the contents and requirements of the SHA and for forest bird surveys that must be conducted under the terms of the SHA.

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.

Description	Expenditure	Revenue	
Beginning Cash Balance		\$ 2,880,296	
Outstanding Encumbrances FY2019	\$ 1,394,304		
Expenditures in FY2019	\$ 952,256		
Total in Encumbrances from previous years	\$ 61,957		
Funds to Implement Obligations of a Habitat Conservation Plan	\$ 807,569		
Private Contributions for the Management and Recovery of Hawaii's Native Wildlife	\$ 987,687		
Subtotal Ending Balance			\$ 3,723,296
Total in Encumbrances			\$ 1,456,261
Total in ESTF in FY18			\$ 5,179,558
Funds rolled over from previous years HCP Technical Assistance Program		\$ 87,712	
Funds Received as Payment for the Use of the HCP Technical Assistance Program		\$ 22,050	
Expenditures in FY2019 for personnel		\$ 49,195	
Total in ESTF (including outstanding encumbrances)			\$ 5,240,125

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 2019 marks the twenty-first year since implementation of Chapter 195D, HRS, to include the issuance of ITLs. The program has demonstrated numerous successes over the last twenty-one 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:

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