



Auwahi Wind Habitat Conservation Plan (HCP) Annual Report - FY18 Update

Endangered Species Recovery Committee |
March 6-7, 2019

Auwahi Wind Project Overview

- **21 MW turbine wind farm facility**

- 8 Siemens 3MW turbines and 11MW battery
- Operational since December 2012

- **ITP/ITL issued for 25 yrs.**

- HCP covers four endangered species -
Backburn's sphinx moth, Hawaiian goose,
Hawaiian hoary bat & Hawaiian petrel

- **Updates**

- ITL/ITP amendment process began in February 2015 for the Hawaiian hoary bat
 - HCP Amendment and SEIS published in OEQC December 2018, comment period and public hearing completed
 - Next Steps: Update HCP and SEIS to address public comments, USFWS expects PEIS Draft out for public comment April/May

Species	Tier	Requested Authorization
Hawaiian petrel (ʻuaʻu)	Tier 1	19 adults/7 chicks
	Tier 2	32 adults/12 chicks
	Tier 3	64 adults/23 chicks
Hawaiian goose (nēnē)	Length of permit	5 adults/fledglings
Hawaiian hoary bat (ʻōpeʻapeʻa)	Tier 1	5 adults
	Tier 2	11 adults
	Tier 3	21 adults
Blackburns sphinx moth	Length of permit	28-acres permanently disturbed habitat

Post Construction Monitoring

- **Ongoing monitoring and bias correction trials for six years**
 - Canine searches implemented Feb 2018
 - Monthly vegetation control to increase SEEF and Nene avoidance
 - Year-round predator control to increase CARE
- **FY18 SEEF Results**

Carcass Size Class	Search Method	Number Placed ¹	Number Found	Average Searcher Efficiency	95 Percent Confidence Interval	Overall Average Searcher Efficiency
Bats	Human	8	6	0.75	[0.408, 0.944]	0.91
	Canine	15	15	1	[0.848, 1]	
Large birds	Human	18	18	1	[0.871, 1]	1
	Canine	8	8	1	[0.738, 1]	

¹Excludes carcasses that were placed in the field but removed by scavengers prior to the survey (i.e., were not available to be found by searchers or tester).

- **FY18 CARE Results**

Carcass Size Class	N	Probability of Carcass Persistence until Next Search	95 Percent Confidence Interval	Search Interval
Bats	13	0.807	[0.638, 0.944]	4
	20	0.752	[0.609, 0.883]	7
Large birds	10	0.934	[0, 1]	4
	10	0.991	[0.921, 0.999]	7

■ FY18 Monitoring Results

- One Hawaiian hoary bat observed, estimated take of 21 – 46¹ adult (41 Direct + 5 indirect)
- Zero Hawaiian petrels observed, estimated take of 2 – 3¹ Adults and 1.26 Juvenile

■ Updates

- No bat and petrel fatalities observed during monitoring since annual report submitted
- Increased cut-in speed from 5 m/s to 6.9 m/s from August 1 to October 31, in 2018
- Bat risk analysis study began in July 2018 (Acoustic and Thermal)
 - Thermal video component July – November 2018



¹ Calculated using EoA (Dalthorp et al. 2017), reporting the range, with the 80% upper credible limit, and incorporated indirect take.

- **Hawaiian goose (nēnē)**

- Management funding (\$25K) provided to Haleakalā National Park Service to build release pen – *completed. 10 goslings and 1 adult.*

- **Blackburn's sphinx moth (*Manduca blackburni*)**

- Restore 6 acres of dryland forest in the Auwahi Forest Restoration Project (\$144K) contracted to LHWRP. Restoration includes 1,500 out plantings of 'aiea and outplant 10 'iliahi – *completed in November 2018*

- **Hawaiian petrel ('ua'u)**

- Predator control implemented within the management area and methods successful in capturing predators – *ongoing. 30 predators removed in 2017*
- Mitigation efforts result in one more fledgling or adult than that required to compensate for the requested take of the required tier – *ongoing. 10 chicks produced in 2017.*

- **Hawaiian hoary bat (‘ōpe‘ape‘a)**
 - **Tier 1**
 - Establish a conservation easement for an area within the Waihou Mitigation Area –*complete*
 - Fencing and removal of ungulates within the fenced area –*complete*
 - Vegetation restoration within the fenced area –*complete, maintenance ongoing*
 - Acoustic monitoring at the wind farm site –*complete*
 - **Tier 2/3**
 - Approved research plan (implemented by USGS) with the goals to (1) contribute to the knowledge of the Hawaiian hoary bat on Maui (2) to evaluate bat use and activity patterns over time in the vicinity of the Waihou mitigation area – *ongoing, Final Draft Due March 2019*
 - Telemetry equipment from study donated to USGS to study bats

- **Activities within the Waihou Mitigation area 2013 - 2018**
 - Fence completed around Pu'u Makua, 130 acres (8ft ungulate-proof fence)
 - More than 13,000 native plants outplanted over 41 acres
 - 24.2% cover of native woody vegetation on monitoring transects
 - Bi-annual control of target invasive species i.e. Black wattle, tropical ash bocconia, and monterey pine
 - 9.6% non-native cover excluding grasses on monitoring transects
- **On track to meet success criteria, with ongoing maintenance**
 - 1,000 Koa and 650 other native species outplanted for replacements
 - Seed sow and seed ball trials conducted
- **Updates**
 - Increase in bat acoustic activity 2015/2016 vs 2016/2017

Mitigation – Hawaiian Hoary Bat



2015



2017



2018

Mitigation – Hawaiian Hoary Bat



Mitigation - Hawaiian Hoary Bat

- **Tier 2/3 research underway in the vicinity of the Waihou mitigation area 2015 - 2018**
 - Higher bat acoustic activity at Pu'u Makua versus Wind Farm locations
- **On track to meet success criteria, final report expected March 2019**
- **Updates**
 - Government shutdown added delays in diet analysis and reporting



- **Impacts to Hawaiian petrels are much less than anticipated at the wind farm facility**
- **Successfully implemented predator control within Kahikinui Petrel Management Area 2013 - 2018**
 - Directly removed 30 predators in FY18
- **Collaborated with other organizations conducting predator control on Haleakala**
 - Facilitate small group discussions and demonstrated trapping techniques at first statewide predator control working group meeting on Hawaii island
 - Demonstrated trapping techniques at Maui island wide predator control working group meeting
- **Updates**
 - Developing artificial clay burrow prototype to deploy in 2019 season
 - Shutdown and removed body grip traps

Community Engagement and Outreach

- **Hawaiian Sailing Canoe Association**

- Perpetuate the Hawaiian culture utilizing the wind for sailing and sharing how renewable energy and Hawaiian culture can coexist

- **Maui Nui Seabird Recovery Project**

- Participate in bird banding monitoring trips at Maui and Molokini Wedge-tailed shearwater colonies
- Fund the purchase of Hawaiian Petrel burrow monitoring camera equipment and donated traps for predator control

- **Leeward Haleakala Watershed Restoration Partnership**

- Participate in pine control and native outplanting trips

- **Haleakala National Park Service**

- Share Hawaiian Petrel management techniques

- **Kamehameha Schools Career Day and Summer Internships**

- Share information with students about careers in renewable energy

- **Kahoolawe Island Reserve Commission**

- Sharing trap monitor sensors
- Coordinate cultural and native plant restoration trip

- **Punana Leo O Maui**

- Donate funds and native plants to benefit Hawaiian Immersion School

- **Molokai Land Trust**

- Donate traps for predator control

- **Maui Forest Bird Recovery Project**

- Participate in forest bird surveys, outplanting, and predator control trips

Community Engagement and Outreach



Mahalo for your time!

Questions?



Mitigation - Blackburn Sphinx Moth

- **Continue avoidance and minimization measures along facility road (30ft buffer)**
 - Removal of tree tobacco within buffer
 - Translocation 4 of individuals in FY18
- **Auwahi Forest Restoration Project planted 1,086 of the proposed 1,500 'aiea and 20 of 10 Iliahi in 11 acres**
- **Updates**
 - 414 more Aiea outplanted – BSM mitigation completed

