
Hōkūala Habitat Conservation Plan Annual Report: July 1, 2021 – June 30, 2022



DRAFT

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Outline of the Document

In the first section of this report, we present updates on compliance with all the terms and conditions included in the HCP (Ebbin, Moser + Skaggs LLP, and Rana Biological Consulting, Inc. 2009). This section includes the specific reference to each topic in the HCP for clarity. In the second section of the document, which begins on page 12. We have presented more detailed information and data associated with each of the topics addressed in the first section of the document.

Section 1

Introduction and Background

In 2012, the U.S. Fish and Wildlife Service (USFWS) and the Hawaii Department of Land and Natural Resources (DLNR)/Division of Forestry and Wildlife (DOFAW) approved the Habitat Conservation Plan (HCP) prepared by Kauai Lagoons LLC and issued to Kauai Lagoons an Incidental Take Permit (ITP) and Incidental Take License (ITL), respectively. The effective date of those incidental take authorizations was April 12, 2012, for the ITL and November 9, 2012, for the ITP. On January 1, 2016, the former Marriott Vacation Resort known as Kauai Lagoons was transferred to Tower Kauai Lagoons LLC and renamed Hōkūala Resort. The USFWS transferred the ITP to the new owner in December 2016. The ITL transferred to the new owner automatically as the ITL runs with the land.

Section 4.5 of the HCP requires that the permit holder produces and submits an annual HCP compliance and monitoring report to both agencies by September 30 of each year. Per DOFAW's request annual reports will be submitted by August 1 of each year and cover July 1 to the following June 30.

HCP Sections and Specific Obligations

One-Time Obligations

Nēnē Mitigation Payment (HCP Section 4.4.1.6)

Requirement: A one-time payment of \$85,000 to the DLNR Endangered Species Trust Fund. DLNR is to use these funds to control predators and/or manage Nēnē at a translocation site.

Status: Completed (May 2012)

Ongoing Obligations

Financial Assurances (Section 6.4)

Requirement: Post a bond or letter of credit in the amount of \$153,667. Under Section 7.2 of the HCP Implementing Agreement, the bond term must be two years, and a Continuation Certificate must be sent to DLNR with a copy to USFWS at least six months prior to expiration of the bond.

Status: The current bond was issued on July 1, 2022, and its term is from July 1, 2022, through July 1, 2023.

Tower Lagoons Land LLC. Commits to including a line item for complete HCP implementation into its annual operating budget for the life of the HCP.

Training (“Endangered Species Awareness Program”) (Section 4.2.1.1)

Requirement: All new employees hired by the resort operators and any contractors conducting construction activity on the property go through the training program detailed in the HCP.

Status: The training modules were updated for the 2021-2022 season. Alan Silva trained all new employees prior to them assuming their new jobs throughout the season.

Construction Contract Provisions (Section 4.2.1.2)

Requirement: Develop provisions and restrictions to avoid and minimize take of Covered Species and insert these Contract Provisions into all new construction contracts.

Status: New construction was initiated in January of 2016, all construction contracts contained provisions and restrictions to avoid and minimize take of Covered Species. Very little construction continues on the property and all new construction contracts awarded during this reporting period include these clauses. Construction has been ongoing throughout the reporting period and all contracts awarded since the re-initiation of construction in 2016 contain the provisions and restrictions.

Pre-Construction Surveys (Section 4.2.1.3)

Requirement: A biological monitor must survey any new mass grading areas immediately prior to mass grading.

Status: Three sites were in the process of grading during this reporting period. Ninini Townhouses along the 15 fairway on approximately 10 acres of land and site work/foundations on approximately 5.5 acres on Lots 9c/d and approximately 16 acres on Lot 9e. All sites are within areas that are included in our daily monitoring routines and were both inspected by our senior on site biologist prior to the onset of grading.

Biological Monitor (Section 4.2.1.4)

Requirement: Designate two biological monitors.

Status: In compliance the two monitors designated in the HCP (Alan Silva and Reginald David) remain the designated monitors.

Construction Monitor (Section 4.2.1.5)

Requirement: Use one or more construction monitors during periods of active grading or earth moving.

Status: Construction grading did occur during the reporting period, see Section 4.2.1.3. Hōkūala has one full time monitor and two part time monitors plus the overseeing biologist Reginald David monitoring construction activities on the property during this reporting period. As construction

moves forward a second full time biological monitor will be hired to ensure full time monitoring of the projects that will be in progress this coming season.

Fencing (Section 4.2.1.6)

Requirement: Where feasible, erect and maintain solid fencing around discrete construction areas, to prevent Covered Species from walking into such areas.

Status: all grading sites were enclosed within eight- foot high construction fencing prior to the onset of work this past season.

Best Management Practices (Section 4.2.1.7)

Requirement: Implement the specific BMPs contained in Section 4.2.1.7 (e.g., speed limits, signage, trash receptacles).

Status: In compliance.

Roadways (Section 4.2.2.1)

Requirement: Post permanent speed limit and Covered Species warning signs, and speed bumps as necessary.

Status: Done – in compliance.

Lighting (Section 4.2.2.2)

Requirement: Ensure that lighting associated with construction of new structures is bird friendly; as new buildings near completion, qualified biologist to inspect lighting after dark to ensure light attraction has been minimized to the maximum extent practicable; analyze onsite seabird fallout monitoring data on an ongoing basis to determine if particular areas within the resort attract downed birds on a regular basis, and if so then take steps to redesign, reconfigure or eliminate potential light attraction sources.

Status: In compliance.

In June of 2018, the new Timbers Kauai Ocean Club & Residences complex was finished and opened (Cover image, and Figure 1). During the design phase of the project Hōkūalas' seabird biologist consulted with the electrical and lighting engineers and designers to ensure that the lighting associated with the facilities were Dark Sky Compliant, and as bird friendly as possible. Prior to the opening of the new facility the biologist conducted a nighttime audit of the property and identified a small number of lights that could be improved, those improvements and/or modifications were completed prior to the seabird fallout season.

Grounds Management and Maintenance (Section 4.2.2.3)

Requirement: Grounds management crews must go through the training described in Section 4.2.1.1 and must coordinate with the biological monitors as needed.

Status: All employees have received training and during the season communicated effectively and proactively with the biological monitors over potential issues with endangered avian species.

Rules, Education for Resort Owners and Renters (Section 4.2.2.4)

Requirement: Covenants, Conditions and Restrictions (CC&Rs) will address issues such as trash receptacles, trash disposal, landscape design, etc.; endangered species information and education tools will be developed to educate owners and visitors regarding endangered species issues, restrictions, and special seasonal protocols.

Status: In compliance. Additionally, during this reporting period, the HCP staff have started leading bird and farm tours on the Resort for guests and visitors. We are currently working on developing brochures and additional collateral material to give to guests and visitors regarding the HCP, birds, the tree, and organic farm which will all be tied together in a unified outreach and property brand and messaging.



Figure 1 – Timbers Kauai Ocean Club & Residences

Golf Operations (Section 4.2.2.5)

Requirement: Golf course Starters and Marshalls must attend additional training from the Biological Monitors in addition to the standard training described in 4.2.1.1; morning briefings for golf course personnel will include updates on Covered Species presence; the Starter will inform each golfer about the potential presence of Covered Species and appropriate precautions; an educational kiosk will be established at the Starter location; golf carts will contain a placard replicating information from the kiosk;

warning signs will be posted if a Covered Species establishes a nest within the golf course; golf course to establish a local rule for golf play allowing movement of a ball away from nest areas.

Status: Done and in compliance.

Maintenance of On-Site Nesting Areas (Section 4.4.1.2)

Requirement: Previously enhanced nesting areas shall not be maintained, and supplemental grain feeders shall not be provided on lagoon islands; limited areas of the resort grounds will be managed and maintained as determined and directed by DOFAW and USFWS.

Status: In compliance.

Emergency Response Protocol (Section 4.4.1.4)

Requirement: Implement the protocol contained in HCP, Appendix I.

Status: In compliance.

Facilitate DOFAW removal of Nēnē (Section 4.4.1.5)

Requirement: As appropriate, lend support to DOFAW efforts to capture and translocate Nēnē.

Status: In compliance. DOFAW's Nēnē capture and translocation efforts ended on March 20, 2016. Hōkūāla continues to provide regular access and golf carts to DOFAW staff for their use in DOFAW's Nēnē and waterbird surveys. Please see Page 19 regarding the initiation of Nēnē hazing using border collies on the property being conducted by the US. Department of Agriculture – Wildlife Services (USDA/WS), which started on June 24, 2019, and it has continued with that activity since then.

Predator Control (Section 4.42)

Requirement: Deploy 10 live traps during the period September 15 to March 15 in areas of the property frequented by waterbird Covered Species; check live traps every 48 hours and deliver trapped cats to Kauai Humane Society; deploy rodent bait stations in same areas during this same timeframe; control cattle egrets and feral chickens.

Status: We have surpassed the permit requirements, during this reporting period we deployed up to 26 live traps on the property. Live traps were deployed throughout the year and were placed in areas in response to sightings of mammalian predators. All traps are checked daily.

A total of 42 cats, seven pigs were removed from the property this season. Feral chickens were shot or live trapped on an almost daily basis with a pellet gun, at the end of the season a total of 890 chickens had been removed from the property. For a more detailed description please see Section 2 (Page 23).

Seabird Mitigation Payments (Section 4.4.3; HCP Amendment of September 2013)

Requirement: Contribute \$10,000 annually to the Listed Hawaiian Seabird Conservation Account administered by the National Fish and Wildlife Foundation.

Status: A check in the amount of \$10,000 will be sent to NFWF by September 15, 2022, to cover the upcoming season.

Nēnē Monitoring During Nesting Season (Section 4.5.3)

Requirement: Biological monitors to monitor Nēnē nesting activity and nesting success daily starting September 15 and ending on March 31 each year. Monitoring data to be collected includes band numbers, pair bonds, nest location, eggs laid, eggs hatched, goslings fledged, and reported mortalities. In addition, perform monthly monitoring during the remainder of the year (April through August), recording the number of Nēnē on the property and observed band numbers.

Status: In compliance. Please refer to Section 2 (Pages 12 through 17).

Waterbird Monitoring (Section 4.5.4)

Requirement: As part of the comprehensive Nēnē monitoring efforts, the biological monitors will also record information about all observed covered waterbird species on a weekly basis between September 15 and March 31 each year, and monthly from April through August each year. To include observations regarding waterbird numbers, nest locations, eggs laid, eggs hatched, goslings fledged, and reported mortalities.

Status: We have surpassed the requirement and survey on a bi-weekly basis year around. Please refer to Section 2, (Page 18).

Seabird Monitoring (Section 4.5.5)

Requirement: Hōkūala security staff will record all downed seabirds recovered on the property; biological monitors will evaluate security staff search efficiency and carcass removal rates; biological monitors will record the results of their own additional searches performed during the expected peak of the seabird fallout season.

Status: Both security personnel and the onsite biological monitors were re-trained in seabird search and handling techniques prior to the start of the 2020 fallout season. Security personnel conducted searches on an ongoing daily basis as part of their usual patrols of the grounds and buildings. The biological staff searched the buildings and perimeters surrounding the buildings every morning for downed seabirds during the September 15 – December 15 fallout season.

Incidental Take Reporting

Based on a review of records, and discussions with Hōkūala the USFWS and DOFAW have prepared a spreadsheet documenting all reported instances of downed, injured, or dead birds at Kauai Lagoons/Hōkūala since the inception of the HCP. The following is a summary of the information contained in the spreadsheet pertaining to the current reporting period.

Between July 1, 2021, and June 30, 2022, Hōkūala experienced the direct incidental take of 11 Hawaiian Coot, five Common Gallinule, and one Newell's Shearwater (Table 1). Five of these birds were hit and killed by vehicular traffic on paved roads within the Resort. One bird was killed after being hit with a golf cart on a green. Eleven birds were killed after having been hit by golf balls, one bird was a Newell's

Shearwater which was a hatch year bird attracted by lights and released unharmed the following day by the Save Our Shearwaters program (Table 1). We have had no non-lethal take of waterbirds since the inception of the permit – injured birds have all needed to be euthanized.

Table 1 –Take and Cause of Take July 1, 2021 – June 30, 2022.

<i>Date</i>	<i>Common Name</i>	<i>Outcome Dead or Alive</i>	<i>Indirect Take</i>
7/20/21	Hawaiian Gallinule	Vehicle hit (Dead)	.65
8/12/21	Hawaiian Coot	Vehicle hit (Dead)	.45
8/30/21	Hawaiian Coot	Golf ball (Dead)	- Juvenile
8/31/21	Hawaiian Gallinule	Vehicle hit (Dead)	- Juvenile
9/2/21	Hawaiian Coot	Golf ball (Dead)	-
9/7/21	Hawaiian Coot	Golf ball (Dead)	-
9/9/21	Hawaiian Coot	Golf ball (Dead)	-
10/14/21	Hawaiian Coot	Golf cart hit (Dead)	-
10/27/21	Newell's Shearwater	Light attraction (Live)	-
11/14/21	Hawaiian Coot	Golf ball (Dead)	-
11/15/21	Hawaiian Gallinule	Golf ball (Dead)	-
12/22/21	Hawaiian Coot	Golf ball (Dead)	-
1/12/22	Hawaiian Coot	Golf ball (Dead)	-
3/15/22	Hawaiian Coot	Vehicle hit (Dead)	.45
3/24/22	Hawaiian Gallinule	Vehicle hit (Dead)	.65
3/29/22	Hawaiian Coot	Golf ball (Dead)	.45
4/18/22	Hawaiian Gallinule	Golf ball (Dead)	.65

Indirect take is defined as the loss of parental care due to mortality during the breeding season resulting in the indicated additional take calculated as the probability that if the adult had not been killed that any potential nest would have produced the number of adults indicated.

From the effective date of the state and federal take authorizations, through June 30, 2022, total direct and indirect incidental take under the HCP is presented in (Table 2).

Table 2 – Hōkūala Direct and Indirect Take from Permit Inception Through June 30, 2022.

<i>Species</i>	<i>Scientific Name</i>	<i>Number</i>	<i>Indirect</i>
Hawaiian Goose (Nēnē)	<i>Branta sandvicensis</i>	3	2
Common (Hawaiian) Gallinule	<i>Gallinula galeata sandvicensis</i>	28	10.50
Hawaiian Coot	<i>Fulica alai</i>	20	4.350
Hawaiian Duck	<i>Anas Wyvilliana</i>	6	1.225
Black-necked (Hawaiian) Stilt	<i>Himantopus mexicanus knudseni</i>	0	0
Newell's Shearwater	<i>Puffinus newelli</i>	8	0

Hawaiian Petrel	<i>Pterodroma sandwichensis</i>	0	0
Band-rumped Storm-Petrel	<i>Oceanodroma castro</i>	0	0

Table 3 – Hōkūala Permitted Take Approved in the ITP and ITL Issued in 2012.

<i>Species</i>		<i>Mortality</i>	<i>Non-Lethal</i>
Hawaiian Goose (Nēnē)	<i>Branta sandvicensis</i>	17	Or Non-Lethal
Common (Hawaiian) Gallinule	<i>Gallinula galeata sandvicensis</i>	40	30
Hawaiian Coot	<i>Fulica alai</i>	110	180
Hawaiian Duck	<i>Anas Wyvilliana</i>	36	Or Non-Lethal
Black-necked (Hawaiian) Stilt	<i>Himantopus mexicanus knudseni</i>	38	Or Non-Lethal
Newell's Shearwater	<i>Puffinus newelli</i>	27	Or Non-Lethal
Hawaiian Petrel	<i>Pterodroma sandwichensis</i>	1	Or Non-Lethal
Band-rumped Storm-Petrel	<i>Oceanodroma castro</i>	<1	Or Non-Lethal

Section 2

In this section we present detailed information on the activities associated with managing the Nēnē and other waterbird species on the property, including, nesting, production, recruitment and banding as well as predator control, mortalities, and minimization measures implemented.

Nēnē Nesting Observations

Between July 1, 2021, and June 30, 2022, the Nēnē (*Branta sandvicensis*) nesting season resulted in 26 Nēnē nests, from 26 different pairs, on Hōkūala property (Figures 2 and 3; Table 4). The season began in mid-September. Gravid females were observed, and the first nest was located on November 19, 2021. Subsequent nests were found through February 3, 2022. Nēnē pairs were monitored daily from September through June and data was compiled into an excel database. This monitoring data includes: Nēnē pairs (bands when present), nests viability and gosling survivability, banding, avian mortalities, waterbird surveys, and predator trapping summary.

The 26 Nēnē nests (only 20 found) produced 76 eggs, of which 57 hatched for an average hatch rate of 75-percent. Of these 57 hatchlings, 45 survived to fledge, a hatchling survival rate of 79 percent (Table 4). The first pair to nest, bTpZ♂--bPKU♀ laid three eggs all of which hatched. Twelve nests were abandoned. (Table 5).

Table 4– Nēnē Egg Production and Survivorship at Hōkūala July 1, 2021 – June 30, 2022

<i>Eggs Laid</i>	<i>Eggs Hatched</i>	<i>Hatch Rate</i>	<i>Goslings Fledged</i>	<i>Hatchling Survival Rate</i>
76	57	75%	45	79%

During the 2021-2022 nesting season, 75-percent of nests were successful, hatching at least one gosling (Table 5). One nest failed to hatch. Failed eggs were collected, and measurements were taken, and viability was determined for each egg by examining the contents of the eggs. Five eggs were found to be infertile when examined after collection. One egg had a fully developed embryo, one egg had a partially developed embryo, five eggs were rotten inside and completely black, one egg from the same female that lays walnut sized eggs every year was tiny and not viable, and one was crushed in the nest and another egg in that same nest went missing. Detailed info on nest and egg fates is presented in Table 6. Details on the nests, timing, bird band numbers and locations of the nests are detailed in Table 7. A visual representation of the nest locations is depicted in (Figures 2 and 3).

Table 5 – Nēnē Nest and Egg Fates July 1, 2021 – June 30, 2022

<i>Nest Fates</i>			<i>Egg Fates</i>		
		<i>Percentage</i>			<i>Percentage</i>
Hatched	14	53.85%	Hatched	57	75.00%
Abandoned	12	46.15%	Abandoned	3	3.947%
Disappeared	0	-	Disappeared	1	1.316%
Predated	0	-	Predated	0	-
Smashed	0	-	Smashed	1	1.316%

Failed to Hatch	0	-	Failed to Hatch	14	18.421%
Total Nests	26	100.00%	Total Eggs	76	100.00%

Table 6 – Un-hatched Nēnē Eggs Fates July 1, 2021 – June 30, 2022

<i>Nest #</i>	<i>Pair</i>	<i># Un-hatched eggs</i>	<i>Length (mm)</i>	<i>Width (mm)</i>	<i>Weight (g)</i>	<i>Diagnosis</i>
22-08	♂ JEN- ♀ NXA	2	86.35mm	54.68mm	119g	Partially developed
			85.04mm	57.25mm	135g	Partially developed
22-09	♂ Unb ♀ y944	3	77.25mm	55.49mm	60.g	Infertile, yellow
			75.81mm	44.70mm	87.g	Rotten, all black inside
			85.60mm	55.81mm	122.g	Rotten, all black inside
22-10	♂ Unb- ♀ PRT	3	85.55mm	53.88mm	104.g	Infertile, yellow
			83.70mm	54.88mm	120.g	Infertile, yellow
			80.90mm	53.87mm	105.g	Infertile, yellow
20-14	♂ HJA- ♀ JHC	1	83.85mm	50.03mm	115g	Fully developed
20-15	♂ JHE- ♀ RRU	3	85.47mm	54.58mm	120g	Infertile, yellow
			No data	No data	No data	Missing from nest
			No data	No data	No data	Crushed in nest
22-20	♂ JEN- ♀ NZH	1	Missing	From	Nest	Walnut sized egg
22-23	♂ RTN- ♀ Unb	3	75.55mm	48.19mm	62g	Rotten, all black inside
			75.25mm	47.12mm	63g	Rotten, all black inside
			74.69mm	48.51mm	59g	Rotten, all black inside



Figure 2 - Nēnē Nest Sites Islands 2 and 3, Main Lagoon - 2021-2022 Season



Figure 3- Nēnē Nest Sites Islands 5, 6, 7 and other locations Main Lagoon - 2021-2022 Season

Table 7 – 2020-2021 Hōkūala Nēnē Nesting Season

<i>Date Found</i>	<i>Nest #</i>	<i>Pair ID</i>	<i>UTM</i>	<i>Eggs/hatched</i>	<i>Survey Fledged</i>	<i>Nest Location</i>
11-19-21	21-01	♂bTPZ-♀bPKU	0464230-2428434	3/3	2	Island 2, S/W corner, near pandanis plant, 1 dead gosling in nest 12-21
11-26-21	21-02	♂Fed-♀bPJZ	0465073-2428772	3/3	0	OC-12, airport side in heavy oleander bushes near fence flag
11-29-21	21-03	♂bRTN-♀bUPN	0464859-2428677	2/2	0	Island 7, top of dry waterfall, 12-29-21, No goslings-stolen by ZAE-RRZ?
12-14-21	21-04	♂bZAE-♀bRRZ	0464142-2428430	3/3	7	Off OC18 pathway, in rebar area. Now have 7 goslings 2-23-22
12-14-21	21-05	♂bHTX-♀bNXE	0464311-2428196	3/3	0	East end, island 1, in monstera. Taken by ZAE-RRZ?
12-14-21	21-06	♂bNZU-♀bJCY	0464252-2428443	3/3	0	Island 2 in pit. Taken by ZAE-RRZ?
12-14-21	21-07	♂bPAE-♀bKCY	0464218-2428420	4/4	2	Island 2, SW corner, under old bougainvillea
12-16-21	21-08	♂bJEN-♀bNXA	0464151-2428470	2/0	0	Off #18 pathway, behind cut grass pile in koa haole
12-19-21	21-09	♂Unb(m)-♀bZAJ	0464323-2428455	3/0	0	Construction trailer yard, just off path (green flag in tree)
12-20-20	21-10	♂Unb(m)-♀bRRT	0464189-2428381	3/0	0	Bougainvillea patch between 17 & 18, by clock
12-21-21	21-11	♂bTPX-♀bNZR	Deleted in error	3/3	3	Island 5, hill top, right side
12-22-21	21-12	♂bJEH-♀bKEC	0464467-2428686	3/3	3	W,B2, in naupaka under ironwood trees, far naupaka edge
12-28-21	21-13	♂bZYJ-♀bNZH	0464233-2428441	4/4	4	Island 2, near nest 1 site, 1 stolen
12-29-21	21-14	♂bHJA-♀bJHC	0465088-2428826	3/2	1	Halfway down OC12 fairway, in ditch along ap fence line in oleander-koa haole
1-6-22	22-1	♂bJHE-♀bRRU	0464700-2428505	3/0	0	Inside lower const area, along berm edge ,half-way to Kalanipu'u
1-17-22	22-2	♂bHZA-♀bNXH	0464118-2428696	3/0	0	Just off OC-18 cart path near "Y All 3-gosling dead at nest
1-18-22 -FS	22-3	♂bRHE-♀bRTA	Not found	3/3	3	Seen in county yard 3/14/22, ok

Table 7 - continued

<i>Date Found</i>	<i>Nest #</i>	<i>Pair ID</i>	<i>UTM</i>	<i>Eggs/hatched</i>	<i>Survey Fledged</i>	<i>Nest Location</i>
1-19-22 -FS	22-4	???-♀bPJY	Not found	3/3	3	Seen by Waikahi 8 pond 3/15,22, ok...no male with them
1-25-22	22-5	♂bTPX-♀bJEZ	0464442-2428750	4/4	4	Island 3, pit top, west side
1-25-22	22-6	♂bRRE-♀y944	0464867-2428709	1/0	0	Island 5, under down tree, east side. Walnut sized egg
1-25-22	22-7	♂bHRJ-♀bHRK	0464869-2428708	3/3	3	Island 7, W, waterfall top
1-22-22 -FS	22-8	♂bZAH-♀bRRK	Not found	2/2	1	Not found, nest in TC rebar area - 1 taken or died?
2-3-22 -FS	22-9	♂bTRN-unb (f)	0464178-2428678	3/0	0	Island 2, s/e side by electrical box, in short hau bushes
2/7/22 -FS	22-10	♂bHRN-♀b999	Not found	4/4	4	First seen in OC-8 pond
2/9/22 -FS	22-11	♂bJEX-♀bNUY	Not found	3/3	3	First seen around OC-8 pond
2/10/22 -FS	22-12	♂bHZC-♀bJEY	Not found	2/2	2	First seen at the TK pump station banana patch

In addition to the 26 pairs that nested, and their 46 surviving goslings, an additional 22 state banded Nēnē and one federal banded birds plus 12± un-banded Nēnē utilized the property during this reporting period (Table 8). During the season, biologists from DOFAW with the assistance of Hōkūala biologists banded a total of 40 Nēnē, 39 of which were hatch year, goslings and one was an adult. All bands (not including birds banded this season) recorded for this reporting season are presented in table 8.

Table 8 – Band Codes for Nēnē at Hōkūala 2021-2022 – Does not Include birds banded this season

<i>Band Code</i>	<i>Band Code</i>	<i>Band Code</i>	<i>Band Code</i>	<i>Band Code</i>	<i>Band Code</i>
bHJA ♂	bJEY ♀	bNZR ♀	bRRU ♀	bUPN ♀	bZAK ♀
bHRJ ♂	bJEZ ♀	bNZU ♂	bRRZ ♀	bXPU ♂	bZAK ♂
bHRK ♀	bJHC ♀	bPAE ♂	bRTA ♀	bXPY ♂	bZAN ♀
bHRN ♂	bJHE ♂	bPJY ♀	bRTN ♂	bYUP ♀	bZAU ♂
bHTX ♂	bKCY ♀	bPKU ♀	bRTR ♂	bYUR ♀	bZNJ ♂
bHZA ♂	bKEC ♀	bRHE ♂	bTPK ♂	bYUT ♂	
bHZC ♂	bNUY ♀	bRPN ♂	bTPY ♂	bZAC ♀	y944 ♀
bJCY ♀	bNXA ♀	bRRE ♂	bTPZ ♂	bZAC ♀	b999 ♀
bJEH ♂	bNXE ♀	bRRK ♀	bTRN ♂	bZAE ♂	
bJEN ♂	bNXH ♀	bRRP ♀	bTZT ♂	bZAH ♂	
bJEX ♂	bNZH ♀	bRRT ♀	bUPH ♂	bZAJ ♀	

Given that the bird make-up of the site has changed significantly over the past several years because of DLNR-DOFAW removal of over 500 Nēnē from the property between 2011 and 2016 and the implementation of a Nēnē hazing program in 2019 using trained dogs, which is still ongoing – comparing metrics from the onset of the program to the last 10 seasons is difficult. The flock of Nēnē that were present on the site prior to the removal of animals was a mature flock consisting of all age groups of birds, some as old as 22 years old. Those Nēnē were the dominant bird species on the property, and pretty much controlled where and how many other waterbirds were present on the site. As the Nēnē were removed from the property the densities of each species have changed dramatically. For instance, at the start of the program there were very few Common Gallinules in and around the golf course – they were pretty much restricted to the dense vegetation on a couple of ponds. Since the diminution of Nēnē numbers has occurred this species is now the second most common waterbird species on the property (Table 9). Looking at the mortality of this specific species on the site it was not an issue at the onset of the permit in 2012, but currently is the larger issue numerically. Though the increased production of fledgling gallinules has more than kept pace with the increase in mortality incidents. During this season we produced 48 Common Gallinule fledglings, and the previous season 113.

Nēnē Hazing

On June 24, 2019, the USDA/WS acting on the behalf of the Hawaii Department of Transportation, Airports Division, began their pilot project to haze Nēnē from the Resort using dogs, and other non-lethal methods. The initial one-year pilot project has been extended and enlarged with the addition of more dogs and handlers. Currently Wildlife Services is running four dogs on this property. Hazing was ongoing for the entire season addressed in this annual report.

Waterbird and Shorebird Surveys

Native waterbirds on Hōkūala property include resident endemic and indigenous species as well as native non-breeding migratory waterfowl and shorebirds. The resident endemic waterbird species recorded on

the property include all of the resident endemic waterbird species found on the Island of Kaua'i namely, Hawaiian Duck (*Anas Wyvilliana*), Common (Hawaiian) Gallinule (*Gallinula galeata sandvicensis*), Hawaiian Coot (*Fulica alai*) and Black-necked (Hawaiian) Stilt (*Himantopus mexicanus knudseni*). The lone resident indigenous species is Black-crowned Night-Heron (*Nycticorax nycticorax hoactli*). Regularly recorded indigenous migratory shorebird species include Ruddy Turnstone (*Arenaria interpres*), Sanderling (*Calidris alba*) and Wandering Tattler (*Tringa incana*), although we did not record any Wandering Tattler this year. A small number of uncommon and/or extralimital swans, ducks, geese, and shorebirds have been recorded on the property over the years. During this reporting period we did not record any extralimital species.

Waterbird and shorebird surveys were conducted on a bi-weekly basis. Surveys were conducted using golf carts and by walking the property. A synopsis of the data collected over 99 separate counts conducted during this reporting period is presented in (Table 9).

Table 9 – Hōkūala Waterbird and Shorebird Counts July 1, 2021 – June 30, 2022, ~99 counts

<i>Common Name</i>	<i>Scientific Name</i>	<i>Average</i>	<i>High</i>	<i>Low</i>
Hawaiian Goose (Nēnē)	<i>Branta sandvicensis</i>	17	81	0
Hawaiian Duck	<i>Anas wyvilliana</i>	6	28	0
Common (Hawaiian) Gallinule	<i>Gallinula galeata sandvicensis</i>	45	23	0
Hawaiian Coot	<i>Fulica alai</i>	125	198	13
Black-necked (Hawaiian) Stilt	<i>Himantopus mexicanus knudseni</i>	7	23	1
Pacific Golden-Plover	<i>Pluvialis fulva</i>	50	203	0
Ruddy Turnstone	<i>Arenaria interpres</i>	7	18	0
Wandering Tattler	<i>Tringa incana</i>	0	0	0
Black Crowned Night-Heron	<i>Nycticorax hoactli</i>	10	22	4
Cattle Egret	<i>Bubulcus ibis</i>	152	203	59

Waterbird Nesting

Waterbird nesting on the property had been steadily increasing over the past six years. This season we had no Hawaiian Coots or Black-necked Stilts nest on the property. During the last two reporting period Hawaiian Coots, and Common Gallinules, nested in every water feature on the property, this year we saw a different pattern (Table 10, Figures 5 through 8 inclusive).

Table 10 – Additional Waterbird Nesting at Hōkūala 2021-2022

<i>Area</i>	<i>COGA</i>	<i>HACO</i>	<i>HADU</i>	<i>BNST</i>
Farm Mini Pond	3	0	0	0
OC-7/8 Pond	2	0	0	0
Irrigation Pond & Farm Pond	3	0	1	0
Lagoon	6	0	2	0
Mokihana 3	3	1	2	0
Nest Totals	17	0	5	0
Chicks Produced	48	0	29	0



Figure 4 - Hōkūala Overview of Water Features

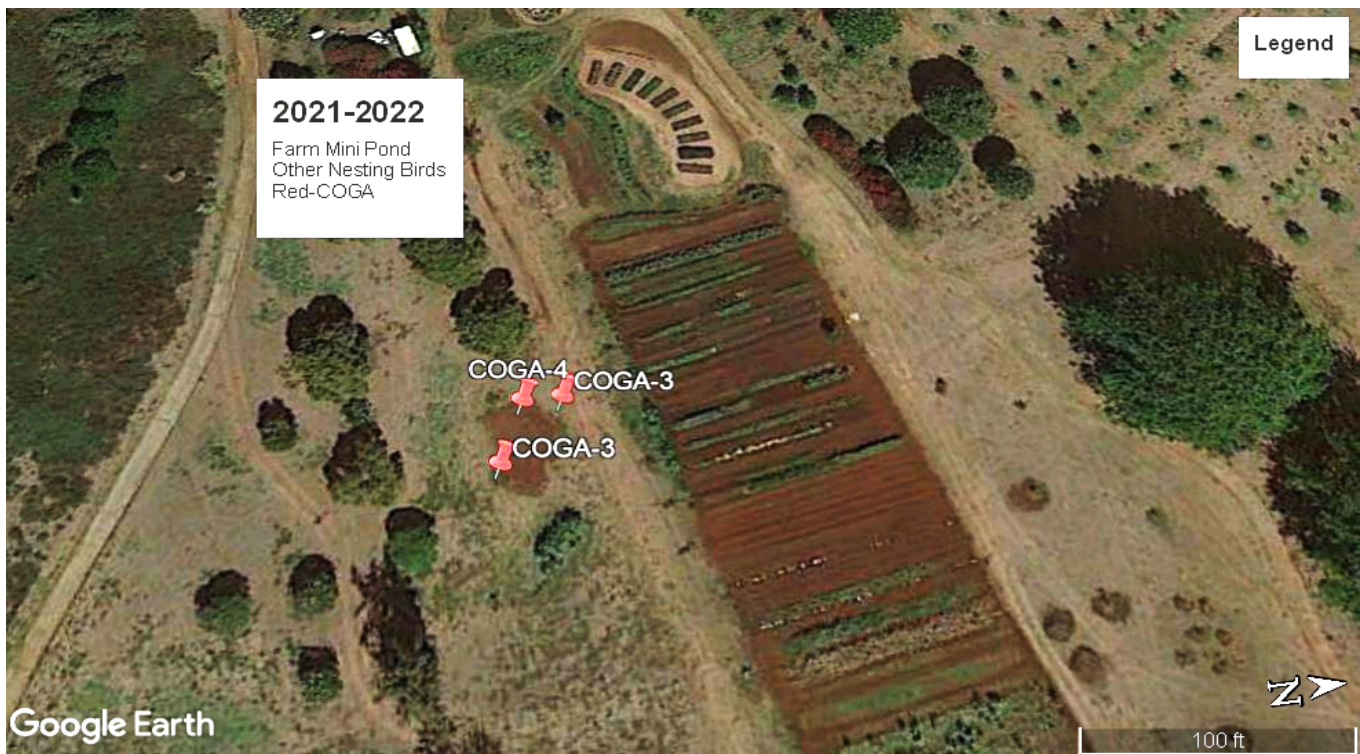


Figure 5 - Farm Mini Pond Waterbird Nests 2021-2022 Season



Figure 6 - Lagoons and 800 Parking Lot Waterbird Nests 2021-2022 Season



Figure 7 – Mokihana Pond 3 Waterbird Nests 2021-2022 Season

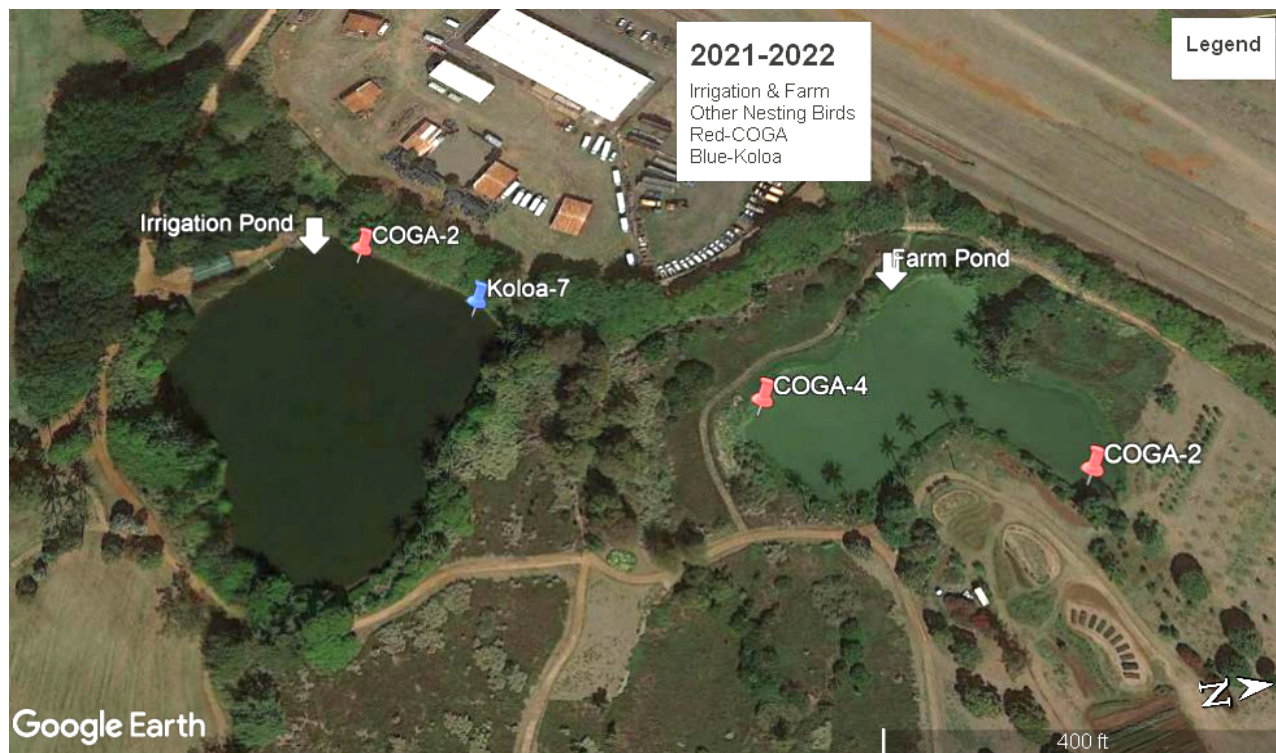


Figure 8 - Irrigation and Farm Ponds Waterbird Nests 2021-2022



Figure 9 - Ocean Course #7/8 Pond Waterbird Nests 2021-2022

Take

A total of 17 listed avian take incidents were recorded on site this season. A species breakdown and totals are represented below (Table 11). All carcasses were stored in the refrigerator at Hōkūala and collected by DOFAW staff or disposed of following direction from DOFAW staff, most within less than 24 hours after the incident.

Table 11 – Hōkūala Take July 1, 2021 – June 30, 2022

<i>Date</i>	<i>Common Name</i>	<i>Outcome Dead or Alive</i>	<i>Indirect Take</i>
7/20/21	Hawaiian Gallinule	Vehicle hit (Dead)	.65
8/12/21	Hawaiian Coot	Vehicle hit (Dead)	.45
8/30/21	Hawaiian Coot	Golf ball (Dead)	- Juvenile
8/31/21	Hawaiian Gallinule	Vehicle hit (Dead)	- Juvenile
9/2/21	Hawaiian Coot	Golf ball (Dead)	-
9/7/21	Hawaiian Coot	Golf ball (Dead)	-
9/9/21	Hawaiian Coot	Golf ball (Dead)	-
10/14/21	Hawaiian Coot	Golf cart hit (Dead)	-
10/27/21	Newell's Shearwater	Light attraction (Live)	-
11/14/21	Hawaiian Coot	Golf ball (Dead)	-
11/15/21	Hawaiian Gallinule	Golf ball (Dead)	-
12/22/21	Hawaiian Coot	Golf ball (Dead)	-
1/12/22	Hawaiian Coot	Golf ball (Dead)	-
3/15/22	Hawaiian Coot	Vehicle hit (Dead)	.45
3/24/22	Hawaiian Gallinule	Vehicle hit (Dead)	.65
3/29/22	Hawaiian Coot	Golf ball (Dead)	.45
4/18/22	Hawaiian Gallinule	Golf ball (Dead)	.65

Take over the life of the permit to date is depicted in the following graph. As can be seen in the graph, the species impacted each year, and the number of incidents varies significantly on an annual basis (Table 12).

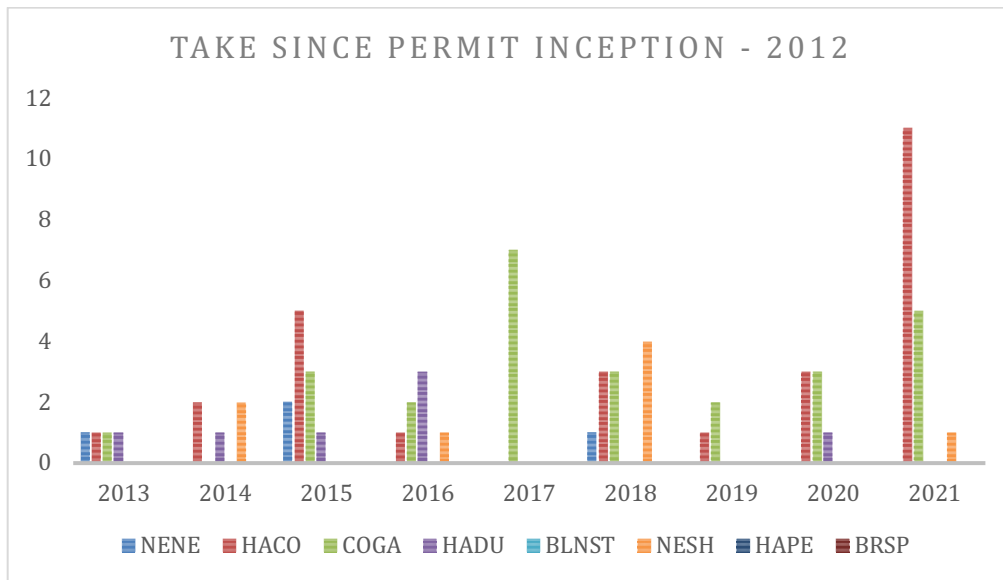


Table 12 – Take over time by species on an annual reporting basis

Predation

We had no mammalian predation events recorded on the property during this reporting period.

Trapping and Predator Control Efforts

Invasive mammalian species removal and predator trapping was carried out throughout the season. Traps were removed during the months that the majority of Nēnē goslings were present to prevent any trap related injuries. Intense cat trapping began at the beginning of the nesting season. A total of 42 cats, and seven pigs were removed from the property this season. Feral chickens were shot or live trapped on an almost daily basis with a pellet gun, at the end of the season a total of 890 chickens had been removed from the property.

It should be noted that the ITP and ITL require the use of 10 traps, the Resort has consistently used over 25 traps, and as noted above has not had a mammal predation event in year. Two of the biggest issues with predator control on this property are that the general public has been increasing the number of cats that are abandoned on the property, likely due to the current Kaua'i Humane Societies policies on accepting cats, and the reality that the 600 plus acre site it is not fenced, and a County of Kaua'i road goes through the property. Predator control effort and results are presented in Table 13.

Table 13 - Trapping and Predator Removal Totals from Hōkūala July 1, 2021 – June 30, 2022

<i>Description</i>	<i>Number</i>
Trapping Days	365
Live traps	25
Cats removed	42
Pigs removed	7
Chickens removed	890

Roadways, Speed Limits and Endangered Species Signage

As previously mentioned, the posted speed limit on the Resort property is 14 MPH (Figure 10). We have a series of different endangered species signs some of which are semi-permanent and others that are temporary and are moved to different locations as needed (Table 14 and Figures 10 through 16 inclusive). Additionally, there are several endangered species informational signs posted in areas that are accessed by guests and golfers using the facilities (Figure 16).

Table 14 – Nēnē and T&E Caution Signs on Property 2020-2021

<i>Sign Description</i>	<i>Number</i>
Yellow metal 2x2 Nēnē crossing signs	17
White Nēnē slow down signs	12
Plastic Sandwich Board caution slow down	3
Metal do not feed Nēnē signs	4
Endangered Species informational displays	2

Bird locations and bird activity and densities are dynamic on this property. As circumstances change and new areas of concern are identified we change warning signage on the property. As of this writing, the resort has deployed 31 Nene crossing, slow down wildlife crossing and two in-road sandwich boards (Table 14, figures 10 through 16, inclusive). During one of the upcoming the next phases of construction on the property, a new entrance to the Resort will be built; at the entrance a large monument sign will be set welcoming guests and owners onto a Wildlife Conservation Area.



Figure 10 – Posted Speed Limit Hōkūala Resort



Figure 11 – Location of Cautionary Signs Deployed on the Resort



Figure 12 – Nēnē Crossing Sign Semi-permanent



Figure 13 – Wildlife Warning and Do Not Feed Signs Portable



Figure 14 – Wildlife Slow Down Warning Signs Placed Every 45 Feet Along Holokāwelu Road



Figure 15 – Sandwich Board Portable sign in the Middle of Holokāwelu Road

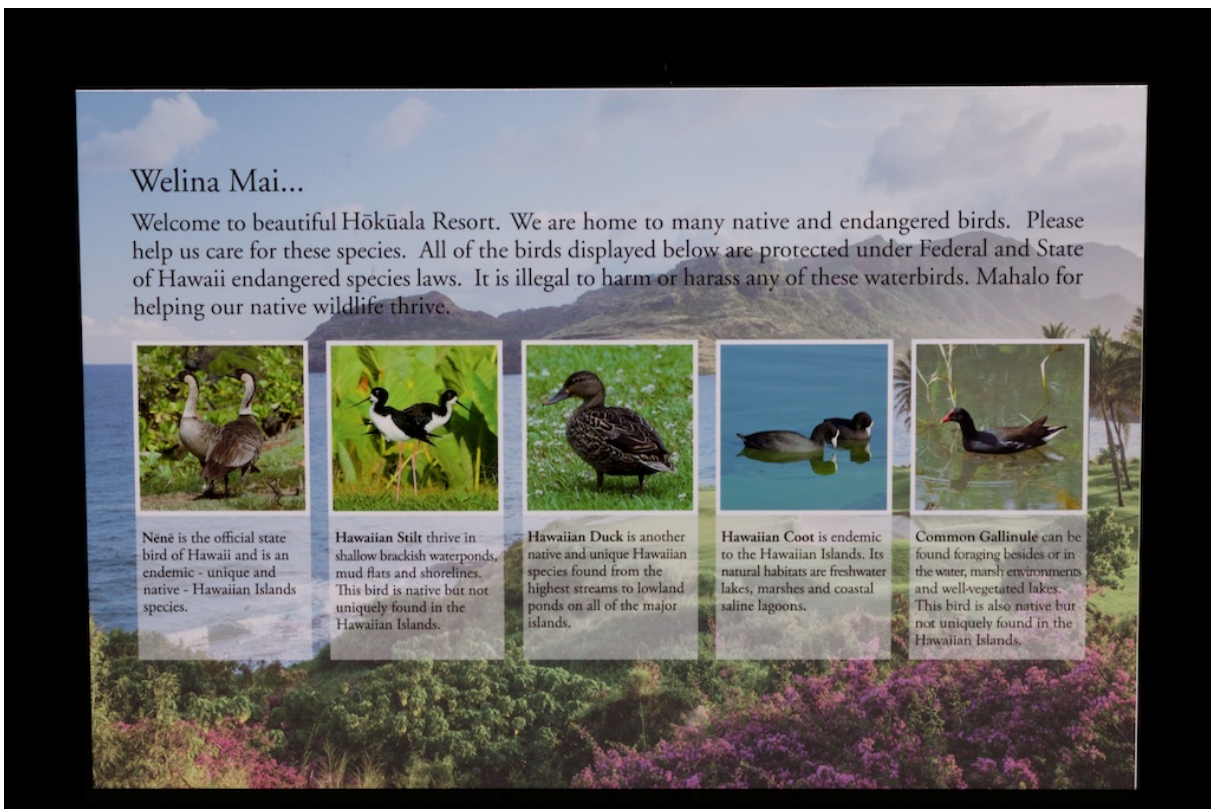


Figure 16 – Typical Endangered Waterbird Informational Sign

Speed Bumps

There are currently five speed bumps on the roadways within the Resort.

Construction Monitoring

During this reporting period three sites were in the process of grading. Ninini Townhouses along the 15th fairway on approximately 10 acres of land and site work/foundations on approximately 5.5 acres on Lots 9c/d and approximately 16 acres on Lot 9e. All sites are within areas that are included in our daily monitoring routines and were both inspected by our senior on site biologist prior to the onset of grading.

Currently Hōkūala has one full time monitor and two part time monitors plus the overseeing biologist Reginald David monitoring construction activities on the property during this reporting period. As construction moves forward a second full time biological monitor will be hired to ensure full time monitoring of the projects that will be in progress this coming season.

Endangered Species Awareness Training

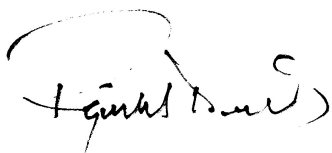
Endangered Species Awareness training was given to all personnel on the site, regardless of job, company, or position. A total of 53 classes were held which trained 263 people. Training was presented as a PowerPoint presentation, there are three iterations developed for specific target audiences and hard copies of the training modules were distributed to all who attended the courses. The training course includes information on all eight listed avian species covered in our State and Federal incidental take license and incidental take permit. In the training sessions the specific Covered Species protocols, and restrictions were discussed in depth, as were potential disciplinary action if the protocols and procedures are not followed. A log of all the individuals that receive training is maintained and all construction workers are required to undergo the training and display a uniquely numbered Endangered Species Awareness Training sticker on their hardhats.

Bird and Nature Tours

Our biologists led 51 bird and nature tours of the Resort property during this reporting period, in which 235 guests and local residents participated.

Certification (Implementation Agreement, Section 8.3)

I certify that, to the best of my knowledge, after appropriate inquiries of relevant persons involved in the preparation of this report, the information submitted is true, accurate, and complete



Reginald David
Biological Consultant
Rana Biological Consulting

Date July 31, 2022

Literature Cited

Ebin, Moser + Skaggs LLP, and Rana Biological Consulting, Inc. 2009. Kaua'i Lagoons Habitat Conservation Plan. Prepared for: Kauai Lagoons, LLC & Mori Golf (Kauai), LLC