Conservation Agreement for Introduction of Endangered Orangeblack Hawaiian Damselfly (*Megalagrion xanthomelas*) to a Conservation Area on the Island of Lānaʻi

Between:

Lānaʻi Resorts, LLC dba Pūlama Lānaʻi
U.S. Fish and Wildlife Service
State of Hawai'i Department of Land and Natural Resources

February 2025

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This Conservation Agreement (this "**Agreement**") is a joint USFWS conservation benefit agreement and State of Hawai‘i Department of Land and Natural Resources safe harbor agreement, and memorializes the conservation actions that Lāna‘i Resorts, LLC dba Pūlama Lāna‘i ("**Pūlama Lāna‘i"**), the U.S. Fish and Wildlife Service ("**Service**"), and the State of Hawai'i Department of Land and Natural Resources ("**DLNR**") (each individually a "**Party**" and collectively the "**Parties"**) will take for the benefit of certain species protected under the Hawai‘i Endangered Species Act and the Federal Endangered Species Act on certain property owned and controlled by Pūlama Lāna‘i located on the island of Lāna‘i, Hawai‘i. This Agreement is effective for purposes of State law upon the latest of the last signature below, and issuance of the Incidental Take License ("**License**") by the State of Hawai‘i. This Agreement is effective for purposes of Federal law upon the latest of the last signature below and issuance of an Enhancement of Survival Permit ("**Permit**") by the Service.

1. INTRODUCTION & DEFINITIONS

1.1 Purpose of this Agreement. The Parties agree on conservation actions that the Parties will implement and monitor on properties owned by Pūlama Lāna‘i for the orangeblack Hawaiian damselfly (*Megalagrion xanthomelas*) ("**Damselfly**"), ae‘o (Hawaiian stilt, *Himantopus mexicanus knudseni*) ("**Hawaiian Stilt**"), ‘alae ke‘oke‘o (Hawaiian coot, *Fulica americana alai*) ("**Hawaiian Coot**") and assimulans yellow-faced bee (*Hylaeus assimulans*) ("**Yellow-Faced Bee**") (collectively the "**Covered Species**"). The purpose of the Agreement is to implement conservation actions that will result in a Net Conservation Benefit for the Covered Species in accordance with applicable law and the terms of this Agreement, and to contribute to their recovery.

This Agreement furthers conservation of the Covered Species by: (1) introducing the Damselfly to a conservation area on Lāna‘i; (2) memorializing Conservation Measures that will be taken to provide and maintain a Net Conservation Benefit that furthers the recovery of each of the Covered Species; (3) describing how the Parties will work together to implement shared goals to benefit the Covered Species and create habitat; and (4) affirming that Pūlama Lāna‘i receives assurances and limited authority to cause purposeful and Incidental Take of Covered Species associated with Conservation Measures and activities in accordance with the terms of this Agreement and applicable law.

1.2 Federal Regulatory Framework. Sections 2, 7, and 10 of the Endangered Species Act ("**ESA**") of 1973, as amended, allow the U.S. Fish and Wildlife Service to enter into this Agreement. Section 2 of the ESA states that encouraging interested parties, through federal financial assistance and a system of incentives, to develop and maintain conservation programs is a key to safeguarding the Nation's heritage in fish, wildlife, and plants. Section 7 of the ESA requires the Service to review programs that it administers and to utilize such programs in furtherance of the purposes of the ESA. By entering into this Agreement, the Service is utilizing its Recovery Program to further the conservation of the Nation's fish and wildlife. Lastly, section 10(a)(1)(A) of the ESA authorizes the issuance of permits to "enhance the survival" of a listed species. The Service enters into this Agreement pursuant to authority

provided by, without limitation, section 10(a)(1)(A) of the ESA and associated implementing regulations found at 50 C.F.R. Parts 13 and 17.

1.3 Hawai‘i Regulatory Framework. Sections 195D-22 and 195D-23 of the Hawaii Revised Statutes ("**HRS**") allow the Board of Land and Natural Resources to enter into this Agreement. The DLNR is statutorily required to carry out programs for the conservation, management, and protection of indigenous aquatic life, wildlife, land plants, and endangered species and their associated ecosystems. HRS § 195D-5(a). The Legislature of the State of Hawai‘i deemed the execution of safe harbor agreements pursuant to section 195D-22, HRS, for the purpose of providing incentives to conserve endangered species is a public purpose and in the public interest, for the general welfare of the state. HRS § 195D-23(f). DLNR is authorized to enter into agreements with federal agencies, counties, private landowners, and organizations for the administration and management of any area or facility established under section 195D-22, HRS. HRS § 195D-5(c). By entering into this Agreement, the DLNR is utilizing its safe harbor agreement statute to further the conservation of the State of Hawai‘i's wildlife. Section 195D-22(b) authorizes the DLNR to authorize the Take of an endangered, threatened, proposed, or candidate species incidental to an otherwise lawful activity in or affecting the created, restored, maintained, or improved habitat, provided that certain criteria set forth in subsection (b)(1) through (7) are met. The DLNR enters into this Agreement pursuant to the authority provided by chapter 195D, HRS. The take will be incidental to an otherwise lawful activity. Additionally, any incidental take must be undertaken in accordance with the terms of the Permit and License, as applicable, each of which will incorporate this Agreement.

1.4 Assurances Provided. The assurances listed in this Agreement apply to Pūlama Lāna‘i where the Conservation Measures described in Sections 7, 8 and Appendix A of this Agreement are being properly implemented. The assurances apply only with respect to the Covered Species. Through this Agreement, the Service and DLNR provide Pūlama Lāna‘i with assurances that there are no required additional conservation measures or additional land, water, or resource use restrictions, beyond those voluntarily agreed to and described in Sections 7 and 8 and Appendix A of this Agreement.

The Service's assurances will be authorized through the issuance of a Permit under section 10(a)(1)(A) of the ESA. Pūlama Lāna‘i may return the Enrolled Property back to the baseline established in this Agreement at the end of the Agreement in accordance with applicable terms of this Agreement and Service regulations.

1.5 Relationship to Other Agreements. A Memorandum of Understanding was signed in 2015 between the Service, Pūlama Lāna‘i, and Castle & Cooke Properties, Inc. to promote cooperative conservation efforts that benefit certain plant and animal species on Lāna‘i. The Service considered that Memorandum of Understanding in its 2016 critical habitat designation on Lāna‘i (USFWS 2016a). The Service has determined that this Agreement is consistent with the Memorandum of Understanding.

1.6 Relationship to Permit and License. Pūlama Lānaʻi intends to apply for a federal Permit pursuant to section 10(a)(1)(A) of the ESA, and a state License pursuant to HRS §§ 195D-4(f) and 195D-22(b).

1.7 Definitions. As used in this Agreement, the following terms are defined as follows:

"Adaptive Management" means a decision-making process that accounts for what is uncertain as well as what is known about the processes that influence natural resource behavior through time and the influence of management on resource changes. Adaptive management seeks to reduce this uncertainty and thereby improve management through enhanced understanding of management effects.

"Agreement" means this Conservation Agreement.

"Auxiliary Reclamation Facility" means the Lānaʻi City Auxiliary Reclamation Facility located on TMK 2-4-9-002-061 at the southwest edge of Lānaʻi City.

"Baseline Condition" means population estimates and distribution or habitat characteristics across the Enrolled Property that currently (as of the date of this Agreement) sustains seasonal or permanent use by the Covered Species at the time a conservation benefit agreement is executed by the Service and the property owner, or by a programmatic permit holder and the property owner, under 50 CFR §§ 17.22(c) and 17.32(c), as applicable, and as more particularly described in Section 4 of this Agreement.

"Conservation Area" means a portion of TMK 2-4-9-002-061 which is approximately three (3) acres in size and which is depicted in Figures 1, 2, 3 and 4 attached to this Agreement, approximately bounded by the coordinates (20.80898,-156.91205), (20.80793,-156.91104), (20.80810,-156.91177), and (20.80840,-156.91053).

"Conservation Measures" means the Covered Activities which are expected to provide a Net Conservation Benefit to the Covered Species.

"Covered Activity" and "**Covered Activities"** mean an action or series of actions that causes Take of a Covered Species and for which Take is authorized by the Permit or License, as applicable.

"Covered Species" has the meaning set forth in Section 1.1 of this Agreement.

"Damselfly" has the meaning set forth in Section 1.1 of this Agreement, and includes both the applicable species and one or more individuals of such species.

"DLNR" has the meaning set forth in the first paragraph of this Agreement.

"DOFAW" has the meaning set forth in Section 8 of this Agreement.

"Enrolled Property" means the Conservation Area and the Other Areas, together.

"ESA" means the Endangered Species Act of 1973, as amended, 16 U.S.C. 1531, *et seq.*

"Hawaiian Coot" has the meaning set forth in Section 1.1 of this Agreement, and includes both the applicable species and one or more individuals of such species.

"Hawaiian Stilt" has the meaning set forth in Section 1.1 of this Agreement, and includes both the applicable species and one or more individuals of such species.

"HRS" means the Hawai'i Revised Statutes.

"Incidental Take" shall have the meaning set forth in 50 C.F.R. § 17.3 and HRS §§ 195D-2(g) and 195D-22(b), as applicable.

"License" has the meaning set forth in Section 16.3 of this Agreement.

"Mānele Wastewater Treatment Facility" means the small, closed R-1 wastewater treatment plant owned and controlled by Pūlama Lāna'i, located on TMK No. 2-4-9-017-001.

"**Megalagrion Working Group**" means the Service in partnership with DOFAW, the University of Hawai'i, the Bishop Museum and U.S. Army's Natural Resources Program that have been working on re-establishing populations of Damselfly on O'ahu through translocations and a captive propagation program.

"Net Conservation Benefit" means the cumulative benefit provided through implementation of this Agreement that is designed to improve the existing Baseline Condition of the Covered Species by reducing or eliminating threats, or otherwise improving the status of covered species, minus the adverse impacts to the Covered Species from ongoing land or water use activities and Conservation Measures, so that the condition of the Covered Species or the amount or quality of its habitat is reasonably expected to be greater with implementation of the Agreement than without it.

"NRCS" means the Natural Resource Conservation Service, an agency of the United States Department of Agriculture.

"Other Areas" has the meaning set forth in Section 3.2 of this Agreement.

"Party" and "**Parties"** have the meanings set forth in the first paragraph of this Agreement.

"Permit" has the meaning set forth in Section 16.2 of this Agreement.

"Pūlama Lāna'i" has the meaning set forth in the first paragraph of this Agreement.

"Service" has the meaning set forth in the first paragraph of this Agreement.

"Take" shall have the meaning set forth in 16 U.S.C. 1532(19) or HRS § 195D-2, as applicable.

"Water Reclamation Reservoir" means the Water Reclamation Reservoir located on the edge of the Pālāwai Basin located on TMK 2-4-9-002-061, near where Mānele Road starts to descend down to the ocean.

"Yellow-Faced Bee" has the meaning set forth in Section 1.1 of this Agreement, and includes both the applicable species and one or more individuals of such species

2. STATUS AND BACKGROUND OF COVERED SPECIES

This Agreement covers the Covered Species, each of which is an endangered species under state and federal law. For purposes of this Agreement only, Pūlama Lānaʻi does not dispute the information in Section 2 of this Agreement or the population estimates as set forth in Table 1.

Table 1. Covered Species – Names and Population Estimates

ʻŌlelo Hawaiʻi	**Common Name**	**Scientific Name**	**Population Estimate**
ʻAlae keʻokeʻo	Hawaiian coot	*Fulica americana alai*	~2000
Aeʻo, kukulaeaeʻo	Hawaiian stilt	*Himantopus mexicanus knudseni*	~2000
Nalo meli maoli	assimulans yellow-faced bee	*Hylaeus assimulans*	Unknown
Pinapinao	orangeblack Hawaiian damselfly	*Megalagrion xanthomelas*	Unknown

2.1 Damselfly. Recovery of the Damselfly requires redundant, self-sustaining populations be reestablished on the island of Lānaʻi (USFWS 2022a). Conservation Measures would ensure reliable water resources and protected artificial habitat are provided to support breeding habitat for the Damselfly. Once restored, the Conservation Area described here would provide a predator-free habitat for reintroduction of captive reared Damselfly to the island of Lānaʻi. This Agreement supports the recovery criteria for the Damselfly (USFWS 2022a).

The Conservation Measures described in Section 7 and Appendix A of this Agreement create small, protected artificial ponds suitable for Damselfly. The Conservation Measures include enhancement of the Conservation Area with native plants and protection from predators and other injurious species, such as invasive weeds and non-native fish. The Conservation Area

would provide a habitat suitable for the reintroduction of an endangered Damselfly population to an area within its historical range.

The Damselfly is endemic to the Hawaiian Islands and was once the most abundant damselfly species in Hawai‘i, found on all the main islands save Kaho‘olawe. The species has since been extirpated from Kaua‘i and Lāna‘i, and is limited to 34 known populations: 1 on O‘ahu, 3 on Maui, 7 on Moloka‘i, and 23 on Hawai‘i (USFWS 2022a, c). Current populations on Moloka‘i and Hawai‘i are considered abundant on a local scale, while those on O‘ahu and Maui exist but are not considered abundant. They were listed as endangered under the ESA in 2016 (USFWS 2016b). Additional descriptions of Damselfly biology, habitat needs, and threats to survival can be found in the detailed Species Report (USFWS 2022c), the description of Species of Greatest Conservation Need from the Hawai‘i State Wildlife Action Plan (DLNR 2015 pp. 366-367), and in the 5-Year Review Summary and Evaluation (USFWS, 2021e) and Species Report (USFWS 2022c) for the Orangeblack Hawaiian Damselfly.

On Lāna‘i, historical populations surveyed during the 1990’s were likely the second-largest set of populations across the Damselfly’s range but were apparently extirpated as of 2019 (Polhemus et al., 2020). Damselfly populations on Lāna‘i formerly existed in Maunalei Gulch in association with a leak in a small water pipeline, near Keōmuku on the island’s windward coast, and at the artificial ponds at the former Koele Lodge and The Experience at Koele Course (Polhemus and Asquith 1996).

Generally speaking, the Damselfly is a low-elevation species, most abundant between 0 - 200 feet [ft] (61 meters [m]) elevation, though they have been observed up to 2,000 ft (610 m) (Polhemus and Asquith 1996). Their phenology includes an immature aquatic stage (naiad) that requires two or more months to complete. Because of this, breeding populations are restricted to areas with standing water that persists for two or more months, and adults typically do not stray far from the vicinity of breeding pools. However, they can inhabit a wide range of habitats including streams, wetlands, and anchialine pools, and have broad physiological tolerances to abiotic water conditions (Polhemus and Asquith 1996).

The Damselfly breeds in a wide variety of water features across Hawai‘i. While they are most commonly found sheltering in the vegetation along the borders of low elevation streams and coastal wetlands, particularly those fed by basal springs (Polhemus and Asquith 1996) they can also be found breeding along terminal and lower midreaches of perennial streams. In the absence of fish and other aquatic predators, the Damselfly can breed in artificial ponds, as documented at the former Lodge at Koele (now Sensei Lāna‘i, a Four Seasons Resort) on Lāna‘i (Polhemus and Asquith 1996). This species can also exploit temporary habitats, such as ephemeral side pools bordering flashy streams on the island of Hawai‘i and pipeline seepages on Lāna‘i (Polhemus and Asquith 1996, Tango 2010).

The Damselfly also tolerates a breadth of abiotic aquatic conditions, including water temperatures ranging from 63.5 to 88 °F (17.5 to 31 °C), preferring temperatures ranging from

68 to 82 ℉ (20 to 28 ℃), and with pH ranging from 6.5 to 9.5 (Tango 2010; Polhemus and Asquith 1996; Johnson 2001; Haines 2020ab, in litt.). In brackish waters, naiads are likely osmoregulators that can maintain their internal fluids within a narrow range even when external salinity fluctuates (Tango 2010). If fluctuations in salinity exceeds the osmoregulating ability of the species (>15 ppt), the naiad may experience lethal or sub-lethal stress such as changes in growth, development, or feeding (Tango 2010).

Predation by non-native species has greatly impacted the Damselfly across Hawai‘i. While the Damselfly appears to tolerate the presence of carp/koi (*Cyprinus carpio*) and apple snails (*Pomacea canaliculata*), predation by invasive Western mosquitofish (*Gambusia affinis*), guppy (*Poecilia reticulata*), shortfin or Atlantic molly (*Poecilia mexicana*), green swordtail (*Xiphophorus hellerii*), Southern platyfish (*Xiphophorus maculatus*), and tilapia (*Tilapia mossambica*), is a signficant threat (Polhemus and Asquith 1996, p. 92; USFWS 2014; USFWS 2016; Dudley et al. 2017; USFWS 2022c). Once invasive fish have become established, especially in remote stream areas, they can be difficult to eradicate (DLNR 2003, entire). As a result, the Damselfly is no longer found in most lentic habitats in Hawai‘i (USFWS 2022c).

Backswimmers are nonnative aquatic insects that are also a threat to the Damselfly. Several species (*Anisops kuroiwae*, *Buenoa pallipes*, and *Notonecta indica*) are established on Maui, Hawai‘i, Lāna‘i, and O‘ahu (USFWS 2016). These insects prey on Damselfly naiads in streams and other aquatic habitat. In addition, the presence of backswimmers inhibits the foraging behavior of Damselfly naiads, with negative consequences for growth, development, and survival (USFWS 2010, p. 36002).

A newly identified threat to the Damselfly is a predatory, freshwater invertebrate, *Hydra vulgaris*. Water studies by DLNR Division of Forestry and Wildlife Hawai‘i Invertebrate Program have shown *Hydra* is a threat to the Damselfly population located at Tripler Army Medical Center on the island of O‘ahu. This common aquarium system pest appears to be preying on damselfly naiads in addition to their other prey that includes *Moina* and *Culex* larvae (Haines 2022, in litt.).

One of the greatest threats to the Damselfly includes poor habitat quality and reduced availability. It is estimated that twelve (12) percent of lowland to upper-elevation wetlands, ninety (90) percent of anchialine pools, and twenty (20) percent of habitat in streams have been lost (Erickson and Puttock 2006; USFWS 2022c). The Service has determined that habitat destruction from the channelization, de-watering, and diversion of streams for agricultural purposes has adversely impacted the Damselfly statewide (USFWS 2022c). Agriculture and urban development have caused the loss of 80 to 90 percent of lowland freshwater habitat in Hawai‘i (Kosaka 1990, in litt.). Habitat destruction by feral ungulates and invasive plants such as para grass (*Urochloa mutica*) has driven population decline range-wide for the Damselfly. On Maui, efforts have been made by the DLNR to clear invasive

plants that crowd and overshade streams and ponds, thereby making the habitat more suitable for the Damselfly (Bustamente 2020).

The Service, in partnership with DLNR, University of Hawai‘i, Bishop Museum, and O’ahu Army Natural Resources Program, have been working on re-establishing populations of the Damselfly on O‘ahu through translocations and a captive rearing program. Conservation efforts have included site suitability testing and more recently, translocation releases on O‘ahu. Although no introduced populations on O‘ahu are yet confirmed to be established and self-sustaining, all sites are carefully monitored (Haines 2020a, in litt.; Polhemus 2020b, in litt.). Haines (2020a, in litt.) stated that the most significant challenge has been identifying appropriate translocation sites that not only have the desired abiotic and biotic characteristics (low elevation, slow moving streams or ponds that lack invasive fish and other predators), but that are also located in areas where the species would not be in conflict with human activities. Some other challenges to establishing a successful translocated population have included severe storms, and environmental conditions that are not conducive for early life history stages (e.g. water temperature, salinity) (Englund 2001). The Service is evaluating new sites, including neighbor islands, for future releases.

The Recovery Plan for the Damselfly was finalized in 2022 (USFWS 2022a). Recovery of the Damselfly will require resilient populations on Kaua‘i, O‘ahu, Moloka‘i, Lāna‘i, Maui, and Hawai‘i in accordance with the recovery plan (USFWS 2022a). This will require habitat creation, translocation and introduction of genetically appropriate Damselfly for the site, and control of predators. Populations should exist within habitat capable of supporting natural dispersal, breeding opportunities, expansion of occupied range, and redundancy on each island.

This Agreement will facilitate establishment of a self-sustaining Damselfly population on Lāna‘i, contributing to the species’ recovery by increasing the number of extant populations, their distribution, and resiliency of the species to stochastic events. As is described in greater detail below, conservation measures center around constructing a man-made water source, and implementing creation and stewardship of an up to 3-acre (1.2 hectare) area in a degraded historic wetland.

2.2 Hawaiian Coot. Predator-free artificial wetland habitat is expected to provide food, nesting, or both types of resources to Hawaiian Coot. This supports recovery criteria for Hawaiian Coot (USFWS 2011). The Conservation Measures described in Section 7 and Appendix A of this Agreement create small, protected ponds which provide a safe habitat for the Hawaiian Coot.

The Hawaiian Coot is a small waterbird endemic to Hawai‘i. The State Wildlife Action Plan describes Hawaiian Coot biology, habitat needs, and threats to survival (DLNR 2015). Able to utilize fresh and brackish water sources, this species is a generalist omnivore known to forage in wetlands, agricultural fields, and artificial ponds from the land and both on and under the water surface. The Hawaiian Coot is currently found in a variety of wetland habitats including freshwater marshes and ponds, coastal estuaries and ponds, artificial reservoirs, kalo or taro (*Colocasia esculenta*) lo‘i or patches, irrigation ditches, and sewage treatment ponds.

The Hawaiian Coot is found on all the main Hawaiian Islands except Kahoʻolawe but is known to breed at relatively few sites (USFWS 2011; Paxton et al. 2021; USFWS 2021c). An estimated 80 percent of the Hawaiian Coot population occurs on the islands of Kauaʻi, Oʻahu, and Maui while the other 20 percent of the population is dispersed in areas on Molokaʻi, the island of Hawaiʻi, and Lānaʻi, specifically at the Maui County-operated Wastewater Treatment Plant ponds in Lānaʻi City. The most recent minimum population estimate of Hawaiian Coot in the Hawaiian Islands is 1,815 (1,248–2,577; 95% CI) individuals based on a 5-year average (2012–2016) (Paxton et al. 2021). On Lānaʻi, the average from the same survey is 29 (7–79; 95% CI) individuals (Paxton et al. 2021).

The most important causes of decline for Hawaiian Coot are loss and degradation of wetland habitat and predation by introduced animals including dogs, cats, rats, owls, mongoose, cattle egrets, and bullfrogs. Invasive plants such as *Urochloa mutica* (para grass), *Batis maritima* (pickleweed), *Eichhornia crassipes* (water hyacinth), *Pluchea indica* (Indian fleabane), and *Rhizophora mangle* (mangrove) have taken over many Hawaiian wetlands, reducing or eliminating the suitability of wetlands for native waterbirds (Shallenberger 1977; Paxton et al., 2021). Other factors that have contributed to waterbird population declines, and that continue to be detrimental, include modification of hydrology, alteration of habitat structure loss of native riparian vegetation, and water quality degradation due to grazing, disease, and possibly environmental contaminants. Avian botulism produced by the bacterium *Clostridium botulinum* is the most prevalent disease affecting Hawaiian waterbirds, in general, and may increase globally with climate change, increasing urbanization, and invasive aquatic species (USFWS 2011; Espelund and Klaveness 2014; Reynolds et al. 2021; USFWS 2021c; USFWS 2022a,c).

This Agreement will facilitate establishment of a predator-free artificial wetland habitat that may provide food, nesting, or both types of resources to Hawaiian Coot. Constructing a man-made water source on the Conservation Area and implementing creation and stewardship of a 3-acre (1.2 ha) area would provide a small, protected area, free of the above threats, that could benefit the Hawaiian Coot population on Lānaʻi.

2.3 Hawaiian Stilt. Predator-free artificial wetland habitat is expected to provide food, nesting, or both types of resources to Hawaiian stilt. This supports recovery criteria for the Hawaiian Stilt (USFWS 2021b). The Conservation Measures described in Section 7 and Appendix A of this Agreement create small, protected ponds in the Conservation Area which provide safe habitat for the Hawaiian Coot.

The Hawaiian Stilt is a long-lived endemic waterbird. The Service published a proposed rule to reclassify the Hawaiian Stilt from endangered to threatened in 2021 (USFWS 2021a). After a review of the best available scientific and commercial information, the Service proposes that the subspecies' status has improved such that it is not currently in danger of extinction throughout all or a significant portion of its range, but that it is still likely to become so in the foreseeable future. The Service also proposed a rule under section 4(d) of the ESA that provides for the conservation of the Hawaiian stilt (86 FR 32857). Detailed descriptions of

Hawaiian stilt biology, habitat needs, and threats to survival are included in the Hawai‘i State Wildlife Action Plan (DLNR 2015, pp. A118–A120), and *Endangered and Threatened Wildlife and Plants; Reclassification of the Hawaiian Stilt From Endangered to Threatened With a Section 4(d) Proposed Rule* (USFWS, 2021a).

The Hawaiian Stilt primarily occurs in natural and human-made lowland coastal wetlands from sea level up to 656 ft (200 m) in elevation, though Hawaiian Stilt have been observed at slightly higher elevations and outside of the coastal wetlands, such as foothill impoundments, reservoirs, and other wetlands (USFWS 2005; USFWS 2011). Hawaiian Stilt use areas of sparse, low-growing (up to 18 in (46 cm) tall) perennial vegetation or exposed tidal flats for nesting and breeding, and sometimes foraging (USFWS 2021a,b). The most common foraging depth for adults appears to be 5 in (13 cm) or less below the surface of the water (Smith and Polhemus 2003; Gee 2007; Reed et al. 2011). Shallow water (approximately 2–3 in [7.6 cm]) and wet mudflats are particularly important for foraging chicks (Morin 1998; USFWS 2021a, b). Hawaiian Stilt typically begin breeding at age two. Nests are simple scrapes on the ground (Coleman 1981; Smith and Polhemus 2003; Gee 2007).

Hawaiian Stilt have been historically documented on all major islands except Lāna‘i and Kaho‘olawe, but currently are considered to comprise a single population occupying the islands of Ni‘ihau, Kaua‘i, O‘ahu, Moloka‘i, Maui, Lāna‘i, and Hawai‘i. Hawaiian Stilt move between islands, based on observations of sudden large increases in numbers at certain sites (from several hundred to a thousand or more), and concomitant decreases. The annual population of Hawaiian Stilt fluctuates with variation in climatic and hydrologic conditions as well as success in reproduction and the toll of predation. The Lāna‘i population of Hawaiian Stilt at the Maui County Wastewater Treatment Plant in Lāna‘i City and the Lāna‘i City Auxiliary Reclamation Facility ponds use these areas for both foraging and breeding grounds. The most recent minimum population estimate of Hawaiian Stilt in the Hawaiian Islands is 1,932 (1,552–2,385; 95% CI) individuals based on a 5-year average (2012–2016) (Paxton et al. 2021). On Lāna‘i, the average from the same survey is 82 (64–104; 95% CI) individuals (Paxton et al. 2021).

The most important causes of decline for Hawaiian stilt are loss and degradation of wetland habitat and predation by introduced animals including dogs, cats, rats, owls, mongoose, cattle egrets, and bullfrogs. Other factors that have contributed to waterbird population declines, and that continue to be detrimental, include modification of hydrology, alteration of habitat structure and vegetation composition by invasive non-native plants, loss of riparian vegetation and water quality degradation due to grazing, disease, and possibly environmental contaminants. Avian botulism produced by the bacterium *Clostridium botulinum* is the most prevalent disease affecting Hawaiian waterbirds, in general, and may increase globally with climate change, increasing urbanization, and invasive aquatic species (USFWS 2011; Espelund and Klaveness 2014; Reynolds et al. 2021; USFWS 2021b). Similar to what is expected for the Damselfly and Hawaiian Coot species, climate change is expected to pose a threat to the Hawaiian stilt species by altering hydrological processes which support their wetland habitat and increasing suitability for invasive species.

This Agreement will facilitate establishment of a predator-free artificial wetland habitat that may provide food, nesting, or both types of resources to Hawaiian Stilt. Constructing a man-made water source in the Conservation Area and implementing creation and stewardship of an approximately 3-acre (1.2 ha) area, free of the threats described above, in a degraded historic wetland would benefit the Hawaiian Stilt population on Lānaʻi.

2.4 Yellow-Faced Bee. While not specifically intended to attract Yellow-Faced Bee, outplanting of native plant species and pollen sources may attract and provide food, nesting or both types of resources to Yellow-Faced Bee. This supports recovery criteria for the Yellow-Faced Bee (USFWS 2022a). The Conservation Measures described in Section 7 and Appendix A of this Agreement provide: (1) an ungulate-free site for native dry shrubland outplanting in the Conservation Area; and (2) pollen, nectar, and potential nesting resources for Yellow-Faced Bee.

The Yellow-Faced Bee is known from the coastal and lowland dry forest habitats on Oʻahu, Lānaʻi, Maui, and Kahoʻolawe (Daly and Magnacca 2003). This large bee is a solitary bee that nests on the ground in existing burrows or natural cavities under bark or rocks. Ground nesting female *Hylaeus* spp. typically rely on burrows made by other invertebrates because they lack the physical characteristics needed to dig their own nests. Females obtain nectar and pollen provisions from native flowering plants to provision their nests. Known forage plants include ilima (*Sida fallax*) and koʻoloaʻula (*Abutilon menziesii*) (Daly and Magnacca 2003; Magnacca 2007). Yellow-Faced Bee adults have also been also observed visiting the flowers of *Lipochaeta lobata* (nehe) (Daly and Magnacca 2003) which grows on Oʻahu and Maui. Recently on Maui, the Yellow-Faced Bee was documented visiting flowers of *Lycium sandwicense (*ʻohelo kai), *Scaevola taccada* (naupaka), *Osteomeles anthyllidifolia* (ʻūlei), *Sesbania tomentosa* (ʻōhai) and *Waltheria indica* (ʻuhaloa) (USFWS 2022b). It is likely the Yellow-Faced Bee visits several other native plants, including koa, ʻōhiʻa, pūkiawe, and *Euphorbia* spp., which are frequented by other *Hylaeus* spp. as well (Magnacca 2005).

Primary threats to the Yellow-Faced Bee are degradation and loss of its native habitats, nests, and foraging resources; predation by nonnative ants on the defenseless Yellow-Faced Bee egg, larvae, and pupal stages; competition with other nonnative species for food resource; and biological limits caused by having low numbers (USFWS 2022b). Detailed descriptions of the Yellow-Faced Bee habitat needs and threats to survival can be found in the species description from the Hawaiʻi State Wildlife Action Plan (DLNR 2015, pp. A341-A342), and *Assimulans yellow-faced bee (Hylaeus assimulans) 5-Year Review Summary and Evaluation* (USFWS, 2021d).

Yellow-Faced Bee individuals, historically known from the coastal and dry forest habitat on Oʻahu, Lānaʻi, and Maui, are now limited to Lānaʻi, Maui, and Kahoʻolawe (Perkins 1899; Fullaway 1918; Daly and Magnacca 2003; Magnacca 2007; USFWS 2021d; USFWS 2022b). In 1999, the species was observed by K. Magnacca at two locations on Lānaʻi: Polihua Road (1000 ft) and Manele Road (600 ft). Surveys in 2020-2021 by DLNR staff identified populations of

Yellow-Faced Bee at Kamaʻalaea and Olowalu on West Maui, and at Puʻu Mahanalua on Lānaʻi. The Yellow-Faced Bee is currently known from eleven (11) populations located on three islands in Hawaiʻi (USFWS 2022b).

The recovery plan for the Yellow-Faced Bee was finalized in 2022 (USFWS 2022a) and includes a detailed desciption of recovery criteria and actions (USFWS 2022a). Recovery actions for the Yellow-Faced Bee include restoration of nesting and foraging habitat protection of host plants and nests from ungulates, translocation and reintroduction of genetically appropriate Yellow-Faced Bee for the site, and management of threats. This Agreement will facilitate outplanting of native plant species and pollen sources, that may provide food, nesting, or both types of resources to the Yellow-Faced Bee, benefitting Yellow-Faced Bee recovery.

3. DESCRIPTION OF THE ENROLLED PROPERTY

The Enrolled Property consists of lands and resources covered by this Agreement that are owned and controlled by Pūlama Lānaʻi. Enrolled Property includes only the Conservation Area defined and described in Section 3.1 of this Agreement and the Other Areas defined and described in Section 3.2 of this Agreement. The Conservation Measures described in Section 7 and Appendix A of this Agreement, will take place in the Conservation Area. The Covered Activities described in Section 3.3 will take place in the Other Areas. A list of TMK numbers for the Enrolled Property is included as Appendix B. Covered Activities may result in authorized purposeful and Incidental Take of Damselfly in the Other Areas, but Incidental Take of Covered Species other than Damselfly is only authorized in the Conservation Area.

3.1 Conservation Area. The Conservation Area is generally located in the Kalulu ahupuaʻa on the island of Lānaʻi (see Figures 1 and 2). Roughly southeast of the intersection of Hawaiʻi Route 440 "Mānele Road" and an unnamed rural access road locally referred to as Hiʻi Road, this 3-acre site was historically used for ranching and agricultural activities, including approximately seventy (70) years of pineapple plantation related operations, followed by thirty (30) years of lying fallow.

There is presently no natural surface water, and therefore there is presently no habitat for the Damselfly, Hawaiian Coot, or Hawaiian Stilt in the Conservation Area. No Covered Species have been detected in the Conservation Area. Located at the terminus of Keaaku Gulch as it reaches Pālāwai Basin, the Conservation Area is down-slope (south) from an old embankment constructed in 1949 that impounds the combined ephemeral discharge of Keaaku and Kapano Gulches influent from the north and renders the south side Conservation Area completely dry. The Conservation Area is below the embankment. The artificial ponds will be placed to avoid the potential of swamping in the event of an unexpected stormwater or flooding event.

3.2 Other Areas. In addition to the Conservation Area, Pūlama Lānaʻi, owns and controls Other Areas. Other Areas do not contain lands that are not owned and controlled by Pūlama Lānaʻi. Other Areas are considered Enrolled Property for the sole purpose of covering

the Incidental Take of the Damselfly; this Agreement does not provide Incidental Take coverage for Covered Species other than the Damselfly outside of the Conservation Area. Standing or flowing water exists within the Other Areas. These Other Areas are shown on Figure 1 and include all tax map key numbers listed in Appendix B, except a portion of TMK 2-4-9-002-061 which is the Conservation Area ("**Other Areas**"). A wide variety of land uses, including habitat conservation lands, commercial resort properties, residential homes, businesses and industrial uses take place in the Other Areas. Conservation Measures for the Other Areas are described in Section 8.

The Parties do not expect the Damselfly to expand into standing or flowing water in Other Areas due to the species' habitat requirements, which include water free of fish predators, and water that is not chemically treated. Portions of the Other Areas are described in Sections 3.2.1 through 3.2.4 below.

3.2.1 Wastewater Treatment and Storage Facilities. There are various wastewater treatment and storage facilities that are owned and controlled by Pūlama Lānaʻi in the Other Areas. These include, but are not limited to : the Auxiliary Reclamation Facility; the Mānele Wastewater Treatment Facility, and the Water Reclamation Reservoir. These properties and facilities are owned by Pūlama Lānaʻi, which may add, remove, or modify wastewater treatment and storage facilities in the future, while maintaining Incidental Take coverage solely for the Damselfly.

The Auxiliary Reclamation Facility is approximately eleven (11) acres and includes three basins, two of which are vegetated with aquatic plants (primarily common water hyacinth (*Eichhornia crassipes*)) and one large open water settling basin. The location of the Auxiliary Reclamation Facility is depicted in Figure 4.

The Mānele Wastewater Treatment Facility is a small, closed R-1 wastewater treatment plant associated with the Four Seasons Resort Lāna'i (Figure 5), and has a small open evaporation pond (photo in Appendix C).

The Water Reclamation Reservoir stores R-1 (oxidized, filtered, disinfected) water from various treatment facilities.

Fish are present in the water at the Auxiliary Reclamation Facility and the Water Reclamation Reservoir including *Gambusia* spp, a non-native mosquitofish that is a significant predator of aquatic damselfly larvae.

3.2.2 Water Features at Resorts and Park Land. Two commercial hotel and resort properties, Sensei Lānaʻi, a Four Seasons Resort located on TMK 2-4-9-018-001 (Figure 6), and the Four Seasons Resort Lānaʻi located on TMK 2-4-9-017-001 (Figure 5) have exterior hardscaping, horticultural landscaping, and water features such as koi ponds and constructed streams. Both properties also have outlying golf courses and park land. The park land adjacent to Sensei Lāna'i, a Four Seasons Resort was a former golf course and includes multiple larger

constructed water features (see Figure 6). The Challenge at Mānele golf course at the Four Seasons Resort Lānaʻi does not have constructed water features. Pūlama Lānaʻi may add, remove, or modify water features at existing or new resorts, golf courses and park lands in the future. Images of some of the water features within the Other Areas are included in Appendix C.

The water features at the resorts and golf course are treated with biocidal agents for mosquito control and water quality. Water features at the resorts and golf course are supplied from the Auxiliary Reclamation Facility and the Water Reclamation Reservoir.

3.2.3 Water and Stormwater Management Facilities. Stormwater is and will be managed in present and future urban, agricultural, industrial and residential areas in the Other Areas.

Sensei Farms is an enclosed hydroponic agricultural development located southwest of Lānaʻi City, across Kaumalapaʻu Highway from Lānaʻi City Airport on TMK 2-4-9-002-061. The facility includes several basin structures for temporary detention of water drained during maintenance of the hydroponic growing facilities while it evaporates and/or infiltrates back into the aquifer.

Pūlama Lānaʻi may add, remove, or modify stormwater management facilities, which it owns and controls, in the future, including but not limited to construction of a new residential development in Lānaʻi City on TMKs 2-4-9-014-001, 2-4-9-002-061 and 2-4-9-014-009 underway as of the date of this Agreement. The neighborhood, known as Hōkūau, will feature stormwater management practices designed to convey and infiltrate runoff. These stormwater practices may have standing water for short periods following precipitation events.

3.2.4 Water Utility Distribution System. The Lānaʻi Water Company supplies drinking water to Lānaʻi residences and businesses. The utility is owned by Pūlama Lānaʻi. The water system has wells, pumping stations, covered reservoirs, tanks, and transmission pipes across many miles of the landscape on Lānaʻi.

3.3 Activities in Other Areas. The Covered Activities include a wide range of business, industrial, residential, and agricultural activities by Pūlama Lānaʻi and other persons and businesses which may result in the Incidental Take of Damselfly on the Other Areas. The introduced Damselfly may disperse from the Conservation Area to Other Areas, especially those that have standing or flowing water. The probability of Damselfly dispersing to Other Areas is low given the habitat requirements of the Damselfly, which include predatory fish-free waters. Nothing in this Agreement shall prevent, restrict, or hinder Covered Activities in Other Areas, including but not limited to Covered Activities that may result in the Take of Damselfly. Notwithstanding any other provision in this Agreement, nothing in this Agreement authorizes the Incidental Take or purposeful take of Covered Species other than Damselfly in Other Areas. Covered Activities may include, but are not limited to the activities described in Sections 3.3.1

to 3.3.4 below. Section 8 describes Conservation Measures that will be implemented to avoid and minimize Take of Damselfly at the Other Areas.

3.3.1 Resort and Park Land Water Feature Maintenance or Removal. The ponds and flowing water features at resort and park land areas may be maintained, removed, modified, or expanded in the future. For proper maintenance and sanitation, it is important to periodically perform work in and around the ponds which can require partial or complete draining. While potential for use of these water features by the Damselfly does exist to some degree, establishment of a population is unlikely to occur because: 1) the introduction will occur in the Conservation Area which is significant distance from these features; 2) treatment with aquatic biocide regularly occurs; and 3) most (if not all) of the ponds in the Other Areas have introduced populations of non-native fish intended to control mosquito breeding which are significant predators of Damselfly naiads.

3.3.2 Wastewater Treatment and Storage Facilities Maintenance. Pūlama Lānaʻi conducts maintenance activities at wastewater treatment and storage facilities such as the Auxiliary Reclamation Facility, Mānele Wastewater Treatment Facility, and the Water Reclamation Reservoir. Maintenance activities include periodic removal of overgrowth of water hyacinth plants and full draining of the ponds for maintenance purposes. Potential does exist for these water bodies to support Damselfly visits, however, establishment of a Damselfly population is unlikely to occur because the ponds have introduced populations of non-native fish intended to control mosquito breeding.

3.3.3 Maintenance of Residential and Commercial Stormwater and Drainage Features. Residential developments and commercial businesses have various stormwater and drainage management features that have potential to occasionally provide habitat for the Damselfly. The runoff management basins are designed to hold standing water for short periods before it infiltrates into the ground. In the event that the drainage management features are not working properly, water could be present for longer than usual after a hydroponics facility draining or a storm, and the features may require partial or complete draining and need additional engineering. While potential for use of these stormwater and drainage management features by Damselfly does exist to some degree, establishment of a population is unlikely to occur because standing water should not be consistently present.

3.3.4 Water Utility Distribution System Maintenance and Repair. Portions of the municipal water distribution system are fifty or more years old and leaks may occur. The Lānaʻi Water Company's Draft Water Use Development Plan has a stated water conservation strategy of reducing "unaccounted for water" by detecting and fixing leaks. The water supply grid has also been fitted with smart meters to provide real-time supply information and isolate leaks. Transmission pipes are not likely to leak long enough for the Damselfly to find a puddle and establish itself. But the locations of leaks are unpredictable and visitation by Damselfly prior to a leak being fixed is possible.

4. BASELINE CONDITIONS

The Baseline Conditions described in this section of this Agreement are species-specific and have been determined by surveys of the Enrolled Property undertaken by persons deemed qualified by the Service and DLNR. The Service and DLNR have determined that site conditions have not changed since these surveys were completed and that these survey results therefore accurately represent current species occurrences and distributions.

The Parties agree that the Baseline Conditions applicable to this Agreement are as follows: (1) the Damselfly is not present on the island of Lānaʻi, including the Enrolled Property (the population on Lānaʻi is zero); (2) the Hawaiian Coot, Hawaiian Stilt and Yellow-Faced Bee are not present in the Conservation Area but are present on Enrolled Property as described in Section 2 of this Agreement; and (3) no wetland habitat for Covered Species is present in the Conservation Area.

As described in Section 3.1 of this Agreement, there is no standing water or existing wetland habitat at the Conservation Area to support Damselfly. The baseline for the Damselfly at the Conservation Area is zero (0) acres of habitat and individuals.

As described in Section 3.1 of this Agreement, there is no standing water or existing wetland habitat at the Conservation Area to support Hawaiian Stilt or Hawaiian Coot. Visual surveys of the Conservation Area by Pūlama Lānaʻi wildlife biologists have found no evidence of Hawaiian Stilt or Hawaiian Coot presence at the Conservation Area. The baseline for the Hawaiian Stilt or Hawaiian Coot at the Conservation Area is zero (0) acres of habitat and individuals.

As described in Section 2.4 of this Agreement, the Yellow-Faced Bee has been detected a handful of times in other areas of Lānaʻi in native habitat approximately two (2) miles away from the Conservation Area. Due to the degraded nature of the habitat at the Conservation Area, and the dependence of the Yellow-Faced Bee on mostly native vegetation, the baseline at the Conservation Area is zero (0) acres of habitat.

5. BASELINE ADJUSTMENT

Natural events such as lava flows, volcanic eruptions, hurricanes, rainstorms, severe drought, lethal forest fires, and insect/disease epidemics are beyond the reasonable control of Pūlama Lānaʻi and could either extirpate the Covered Species from the Enrolled Property or render their habitat on the Enrolled Property unsuitable for continued occupation. For Covered Species natural senescence and death may also occur. These events may reduce Covered Species population numbers or habitat below original Baseline Conditions through no fault of or negligence of Pūlama Lānaʻi. In such circumstances the Parties shall work collaboratively to: (i) reach agreement to revise the Baseline Conditions to reflect the new circumstances; and (ii) consider new conservation measures are that ensure a Net Conservation Benefit for the Covered Species.

6. GOALS AND OBJECTIVES

The biological goal is to provide a Net Conservation Benefit to the Covered Species by expanding their distribution through creating and maintaining new habitat that is free of threats from ungulates and nonnative fish.

6.1 Biological Objectives

- Establishment of at least one small pond of new Damselfly breeding habitat where none currently exists;
- Establishment of an up to 3-acre protected, fenced, ungulate-free, area of terrestrial habitat surrounding the pond(s) for the Covered Species;
- Establishment of a new population of the Damselfly;
- Establishment of a 3-acre fenced, ungulate-free, and predator-controlled habitat containing surface water for Hawaiian Coot and Hawaiian Stilt;
- Establishment of forage, cover, and potential nesting resources for the Yellow-Faced Bee;
- Increased ranges for Damselfly thereby helping recovery of the species;
- Abatement of ecological damage precipitated by ungulates and invasive plant species.

7. CONSERVATION MEASURES IN THE CONSERVATION AREA

The Parties agree to implement measures to: (1) promote the conservation and recovery of the Covered Species; (2) avoid the likelihood of Take of Covered Species through the implementation of specific avoidance and minimization measures; (3) provide the Net Conservation Benefit to the Covered Species described in Section 14 of this Agreement; and (4) facilitate introduction of Damselfly to artificial habitat in the Conservation Area in support of the species establishing self-sustaining populations on Lānaʻi and contributing to recovery by increasing the distribution and number of populations to minimize the risk to the species from catastrophic events. Conservation Measures within the Conservation Area are described in detail in Appendix A. The Parties will implement Conservation Measures and avoidance and minimization measures as set forth in Appendix A to this Agreement which include but are not limited to fence construction and maintenance, artificial pond construction and maintenance, introduction of the Damselfly, outplanting of native plants, vegetation management and predator control. These Conservation Measures will be conducted only in the Conservation Area and are expected to provide a Net Conservation Benefit to the Covered Species.

Nothing in this Agreement prevents Pūlama Lānaʻi from implementing other conservation measures or management activities not described in the Agreement, as long as such actions do not diminish Covered Species populations and habitat conditions below the Baseline Conditions, are not likely to result in Take of the Covered Species, and do not adversely affect the Net Conservation Benefit to Covered Species described in Section 14 of this Agreement.

8. SURVEYS, MANAGEMENT, AND CONSERVATION MEASURES IN OTHER AREAS.

Sections 3.2 and 3.3 of this Agreement describe current land uses and activities in in Other Areas. Take Coverage in Other Areas is limited to the Damselfly. For the activities Pūlama Lānaʻi undertakes in Other Areas, Pūlama Lānaʻi will conduct surveys to determine if the Damselfly is present. The following measures will be implemented to assist Pūlama Lānaʻi in ensuring that it avoids or minimizes the potential Incidental Take of Damselfly, and avoids Take of the other Covered Species:

(1) Staff qualified in field identification of listed insects conduct visual static point and transect presence/absence surveys prior to commencement of draining or extensive vegetation removal activities and consult with appropriate DLNR and Service staff should Damselfly be found at risk. If the Damselfly is discovered on Other Lands, water draining or vegetation removal from ponds would be conducted after consultation with appropriate DLNR and Service staff.

(2) Pūlama Lānaʻi staff will be trained by DLNR Division of Forestry and Wildlife ("**DOFAW**") and Federal staff on Federal and State approved capture, handling, transport, and release procedures for Damselfly eggs, naiads, and adults. In the event authorized DOFAW or Service staff are unable to conduct an emergency collection and translocation in the Conservation Area or Other Areas, Pūlama Lānaʻi staff trained in handling Damselfly (egg, naiad, adult) for the purposes of rescue and translocation activities in the Conservation Area and Other Areas are authorized to conduct the activities. Such activities are authorized as purposeful Take in the Permit.

(3) Pūlama Lānaʻi will consult with DLNR and the Service prior to conducting Covered Activities in Other Areas that may impact Damselfly, including but not limited to maintaining, removing, modifying or expanding wastewater treatment and storage facilities, ponds or flowing water features at resort and park areas, stormwater management features, and water utility transmission infrastructure. Pūlama Lānaʻi will notify DLNR and the Service as set forth in Section 19 of this Agreement.

9. EMERGENCY ACTIVITIES

Emergency situations arising from natural disasters (e.g., wildfire, earthquake, or hurricanes) or posing human health concerns (such as emergency repairs to water or wastewater facilities) may require the rapid initiation of certain actions that may result in the Incidental Take of the Covered Species. The Service and DLNR acknowledge that survey and/or relocation may be impossible in these urgent situations. If these actions are likely to result in Take of Covered Species, Pūlama Lānaʻi will notify the Service and DLNR within five (5) working days of such a situation occurring and will allow entry of personnel and equipment and make other reasonable accommodations to the Service and/or DLNR in the Conservation Area for survey and/or relocation of Covered Species.

10. MONITORING, RESEARCH, AND REPORTING

10.1 Conservation Area Monitoring

10.1.1 Monitoring of Damselfly Populations. Following initial introduction of the Damselfly, Pūlama Lānaʻi will monitor the Conservation Area weekly for a twelve (12) month period. After twelve (12) months, Pūlama Lānaʻi will monitor the Conservation Area at least quarterly for as long as the Damselfly continues to be present. If the Damselfly is not recorded during quarterly monitoring for a period of two years, the Parties agree that the species has not successfully established, and Pūlama Lānaʻi may discontinue monitoring until DLNR introduces the Damselfly to the Conservation Area again.

Pūlama Lānaʻi shall conduct monitoring by walking slowly along the entire perimeter of each pond, counting all Damselfly present, and capturing, marking, and releasing individual Damselfly with the exception of teneral individuals (newly emerged adults) which should not be captured. Pūlama Lānaʻi shall use a different colored marker for marking during each monitoring event. When possible, Pūlama Lānaʻi shall conduct monitoring of adult Damselfly on dry days without excessive cloud cover or strong winds.

Pūlama Lānaʻi shall visually survey ponds for the Damselfly at least quarterly to determine proper operation, evidence of damage, and invasive species occurrence. Pūlama Lānaʻi shall record water quality characteristics which may, but are not obligated to include temperature, pH, and dissolved oxygen. Pūlama Lānaʻi will also check the ponds for presence of fish, mosquitos, and undesirable vegetation.

10.1.2 Monitoring of Hawaiian Stilt and Hawaiian Coot Populations. Pūlama Lānaʻi will monitor for presence of Hawaiian Stilt and Hawaiian Coot in the Conservation Area concurrently with the Damselfly surveys, and record species, numbers, and behavior. If nesting is detected, Pūlama Lānaʻi will follow the Service's standard Best Management Practices for buffer areas, a copy of which is attached as Appendix D.

10.1.3 Monitoring of Yellow-Faced Bee Populations. Pūlama Lānaʻi will monitor the Conservation Area for the Yellow-Faced Bee using timed counts to estimate relative adult bee abundances in the Conservation Area. This monitoring will be conducted, to the extent practicable during the flowering cycles of *Sida fallax* (ʻilima).

10.2 Monitoring of Other Areas

10.2.1 Pre-Maintenance and Management Monitoring for Damselfly. If standing or flowing water is present on Enrolled Property, Pūlama Lānaʻi will use persons qualified in field identification of listed insects to conduct visual static point and transect presence/absence surveys prior to commencement of activities, including but not limited to maintenance and management. These surveys shall be conducted in the area where the activities will take place and in a fifty (50) foot buffer around those areas. If the Damselfly is

present, Pūlama Lānaʻi will consult with DLNR and Service staff. DLNR and Service staff shall make themselves promptly available for such consultation.

10.3 Compliance Monitoring. The Service and DLNR shall monitor and document implementation of the Agreement, including implementation of Conservation Measures, and Take authorized by the Permit and License. Upon reasonable prior notice to Pūlama Lānaʻi, the Service, DLNR and their designees may enter the Conservation Area to monitor compliance with the Agreement and Permit and License requirements. Access by the Service to Other Areas must be arranged by reasonable prior notice to Pūlama Lānaʻi and may be subject to reasonable restrictions imposed by Pūlama Lānaʻi.

10.4 Research. Upon reasonable prior notice to Pūlama Lānaʻi, the Service and DLNR and their designees may enter the Conservation Area to conduct research related to the Covered Species and their habitat. Access by designees of the Service or DLNR is subject to reasonable restrictions imposed by Pūlama Lānaʻi

11. INCIDENTAL TAKE MONITORING AND ANNUAL REPORTING

The Service will work with Pūlama Lānaʻi to record and monitor any Incidental Take during the term of this Agreement. Pūlama Lānaʻi shall prepare annual reports including detailed descriptions of Conservation Measures including but not limited to construction and maintenance activities, translocation activities, survival, modifications and adaptive management responses within the Conservation Area, as well as, species observations in the Other Areas. Pūlama Lānaʻi shall submit the annual report to the Service and DLNR on or before February 15 every year, covering the previous calendar year (January 1–December 31).

12. ANTICIPATED EFFECTS

12.1 Level/Type of Take/Impacts. The Agreement poses risks of Take of the Covered Species. The anticipated risks to each species are provided below.

12.1.1 Damselfly in the Conservation Area. Take in the form of harassment, harm, or mortality of the Damselfly in the Conservation Area could result from implementation of Conservation Measures including but not limited to capture or loss during transfer of plant vegetation to alternative containment reservoirs, siphoning and pond draining, transfer of pond inhabiting plants to new reservoir tanks or ponds, and removal of sediment. Avoidance and minimization measures in Appendix A are in place to monitor and maintain water quality parameters and adequate vegetation to support the lifecyle of the Damselfly. In order to maintain water quality and nearshore vegetation that supports the Damselfly, ponds may require draining through siphoning, removal of vegetation and sediment, refilling, and restablishing zooplankton populations that support the Damselfly. The Parties anticipate that the avoidance and minimization measures in Appendix A will minimize lethal Take through timing of pond drainage, sediment removal activities, and associated vegetation transfer to alternative ponds or containment reservoirs. However, eggs or naiads may still be harmed or killed during these

activites that are necessary to maintain the quality of the ponds. As a result of maintaining habitat quality in the Conservation Area, there may be Take of eggs and naiads present in the pond at the time of maintenance activity.

Eggs or naiads may be killed during cyclic biological events in the ponds caused by algal blooms, water quality changes, temperature changes, or other unforeseen factors leading to pond failure. These events are anticipated to be infrequent and largely, if not solely, due to natural occurrences beyond the control of human management. Conservation Measures will minimize the effects of human and ungulate-associated activities that may contribute to such events. These include avoiding an influx of fertilizers and ungulate and human waste products into ponds. Effects of cyclical biological events may result in Take of eggs and naiads in the pond(s) affected by the event.

Eggs and naiads are not expected to be exposed to herbicide due to avoidance of herbicide contact and/or drift to the ponds or pond vegetation. Implementation of herbicide application restrictions around water to avoid drift, runoff, or contact with water in the pools would be followed according to herbicide labels. In addition, the application will follow the standard operating procedures for application to avoid contact with water. Buffers of fifty (50) feet around habitat occupied by Covered Species would be followed. These actions are designed to avoid impacts to Damselfly eggs and naiads and their pond resources.

Adult Damselfly may perch on nonnative species which have been treated with herbicide. The effect of an herbicide-treated plant on a perching adult damselfly are considered discountable and negligible because the adult does not consume plant material and exposure to an herbicide treated plant is not likely to cause any damage to the exoskelton of the insect, nor is it expected that the herbicide or its breakdown products would enter the body cavity of the insect.

The Conservation Measures may result in Take of individuals (eggs, naiads, adults), which in turn impact the population. Observing or quantifying Take will be very difficult or impossible because adult Damselfly are small and highly mobile, and eggs and naiads are difficult to find and identify.

12.1.2 Damselfly in Other Areas. Take of Damselfly may occur on the Enrolled Property in Other Areas. Once introduced, the Damselfly may naturally disperse to water sources outside of the Conservation Area. Though not expected to occur immediately after introduction, the disperal of the Damselfly to other water resources is anticipated under this Agreement. This Agreement will allow for the natural expansion and contraction of the population only on the Enrolled Property. This unpredictable, yet possible, natural dispersal of the Damselfly to Other Areas may result in the species visiting water sources located at resorts, water and sewage treatment facilities, community developments, and hydroponic farms. Such natural behavior of the Damselfly may result in laying of eggs in water sources that cannot sustain the damselfly species because of Covered Activities including but not limited to (1) presence of predatory fish and/or biocide agents for mosquitoes; (2) draining or maintenance

activities of the water source in accordance with the practices of the business; and (3) temporary water sources that will drain but are dependent upon constraints of the community infrastructure. The Parties will cooperate to bring those individual Damselfly found in the above situations back to the Conservation Area where they can continue to contribute to conservation efforts. Take of all individuals of Damselfly associated with Covered Activities in Other Areas is anticipated and authorized by this Agreement because of these Conservation Measures and because of the Net Conservation Benefit of the Conservation Area to the Damselfly.

12.1.3 Hawaiian Coot and Hawaiian Stilt in the Conservation Area. Take in the form of harassment, harm, or mortality may occur as a result of Hawaiian Coot or Hawaiian Stilt naturally dispersing to the Conservation Area. These waterbird species may be attracted to the Conservation Area once the ponds are constructed and suitable habitat (e.g., forage, cover) is present. The Hawaiian Coot and Hawaiian Stilt may visit to forage or even nest as the habitat becomes suitable at the Conservation Area.

Though predator control will be beneficial to both the Hawaiian Stilt and Hawaiian Coot, trapping activities or equipment could pose a risk to waterbirds should they incidentally interact with a trap, fence, or pools that are constructed, despite design considerations and implementation of avoidance and minimization measures. Predator control may not always be completely effective for the duration of this Agreement. Failures in the fence or trapping system may allow predators such as toads, cats, or rats to breach the predator barrier and pose a risk of Take to the Hawaiian Stilt or the Hawaian Coot, including adults, eggs, or fledglings that are present on the Conservation Area.

Take of Hawaiian Coot and Hawaiian Stilt associated with management activities within the Conservation Area may occur because of noise or movement associated with vegetation management, pond and fence maintenance, surveys, and predator control. Disturbance could result in flight of a foraging or nesting Hawaiian Coot or Hawaiian Stilt from the Conservation Area. Significant disturbance may cause the Hawaiian Coot or Hawaiian Stilt to abandon the nest or cause the nest to fail (e.g. egg is dislodged from the nest or damaged, fledgling is injured, etc.). The avoidance and minimization measures in Appendix A to this Agreement are in place to eliminate or, at a minimum, greatly reduce the risk of this occurring by conducting site surveys prior to activites that may startle the Hawaiian Coot or Hawaiian Stilt. Based on the expected rarity, and possible complete avoidance, the Parties agree that the effect from Conservation Measures is negligible.

The Parties agree that risks to the Covered Species, namely Hawaiian Coot, which is an omnivore, from consumption of an herbicide treated nonnative species is negligible. The application of herbicides to control weeds is not expected to pose a risk to Hawaiian Coot or Hawaiian Stilt because of the implementation of avoidance measures, the foraging behaviors of the two waterbird species, and the extremely limited temporal and spatial exposure at the Conservation Area. Implementation of avoidance and minimization measures reduce or eliminate exposure to a negligable level for the Hawaiian Coot and Hawaiian Stilt.

The Conservation Measures may result in Take of adult, egg, or fledgling of the Hawaiian Coot and Hawaiian Stilt in the form of harassment, harm, or mortality as a result of Hawaiian Coot or Hawaiian Stilt dispersing to the Conservation Area to forage, nest, or both once the habitat is created.

12.1.4 Hawaiian Coot and Hawaiian Stilt in the Other Areas. Conservation Measures at the Conservation Area are not expected to contribute to increased dispersal of Hawaiian Coot or Hawaiian Stilt or increased population on the remainder of the Enrolled Property and therefore no Take is expected on the Other Areas from Covered Activities.

12.1.5 Yellow-faced Bee in the Conservation Area. Take in the form of harassment, harm, or mortality to Yellow-Faced Bee may occur as a result of maintenance activities at the Conservation Area. The initial removal of invasive plant species at the Conservation Area as described in Appendix A is expected to have no effect on the Yellow-Faced Bee because the Yellow-Faced Bee is not known to use the site for nesting or foraging. Therefore, the Yellow-Faced Bee would not be exposed to initial site clearing.

The replacement of invasive plant species with native plants may attract Yellow-Faced Bee to the Conservation Area as a source of pollen and nectar, and potential breeding site. The outplanting of native species, including ʻilima, as described in Appendix A, provide pollen and nectar that may be used by the Yellow-Faced Bee, thus potentially providing benefits to the species should the Yellow-Faced Bee be attracted to the Conservation Area by the food resources. The Parties agree this is wholly beneficial to the Yellow-Faced Bee.

Herbicides would not be applied if the Yellow-Faced Bee is observed. Herbicides will be used only on nonative or invasive plant species that are not known to be occupied by the Yellow-Faced Bee. Herbicide use is not expected to result in drowning, dislodging, harassment, or lethal Take of the Yellow-Faced Bee. There is no data to show that a plant sprayed with an herbicide would pose a risk to a visiting Yellow-Faced Bee. The Parties agree that no negative effects would be expected as a result of use of herbicide to control invasive weed species.

Though foraging resources of the Yellow-Faced Bee include native plant species, the species may also forage on nonnative species, depending on availability and resource need (section 2.4; Daly and Magnacca 2003; Magnacca 2007; USFWS 2022b). Removal of the invasive plant species during maintenance of the Conservation Area is not expected to signficantly reduce the available native pollen and nectar resources used by Yellow-Faced Bee individuals because the attraction of the Yellow-Faced Bee to the site would be from the pollen and nectar from desired native hosts, not that from invasive plant species prevalent throughout the island of Lānaʻi. The invasive species removed during maintenance would not be expected to be providing sustenance to the Yellow-Faced Bee. The Parties agree that removal of nonnative plant species will have negligible effects on the amount of pollen or nectar resources available to the Yellow-Faced Bee and to have discountable effects on the Yellow-Faced Bee.

Avoidance and minimization measures include conducting surveys for listed species prior to conducting maintenance activites that may include manual and chemical means of removing invasive species or trimming species near pools to maintain Damselfly habitat. If

Yellow-Faced Bee are found during the listed species surveys, activites will cease until the bee leaves. Should the Yellow-Faced Bee begin nesting in the Conservation Area, care will be taken to not trim or unduly disturb areas where nesting may occur. Because the nesting of the Yellow-Faced Bee is not well defined, there is a risk that nests may be disturbed or crushed during maintenance and outplanting activities. Take of all individuals of Yellow-Faced Bee associated with Conservation Measures in the Conservation Area may occur.

12.1.6 Yellow-Faced Bee in Other Areas. The Parties agree that Conservation Measures and activities at the Conservation Area are not expected to contribute to increased dispersal of Yellow-Faced Bee to Other Areas of the Enrolled Property because nesting and foraging resources are not present and therefore no Take of Yellow-Faced Bee is expected in Other Areas.

13. PROPOSED AUTHORIZED TAKE

The Parties agree on the following Take estimate for the Covered Species on Enrolled Property:

13.1 Estimated Take Within Conservation Area. The Parties estimate the following Incidental Take of Covered Species within the Conservation Area during the term of this Agreement as described in Sections 13.1.1 to 13.1.4 of this Agreement.

13.1.1 Estimated Take of Damselfly Within the Conservation Area. The loss of the suitable habitat in the Conservation Area will serve as a surrogate for amount of Take of the Damselfly anticipated over the term of the requested permit. Suitable habitat will be measured as gallons of water removed, or square feet of vegetated area cleared within a pond and within one (1) foot of the water's edge. Subject to compliance with Section 7 and Appendix A of this Agreement, unlimited Incidental Take of all Damselfly individuals of all life stages in the Conservation Area in the form of harassment, harm, or mortality caused by Conservation Measures which include but are not limited to conservation, vegetation management, and maintenance activities for the benefit of Covered Species.

13.1.2 Estimated Take of Yellow-Faced Bee Within the Conservation Area. Incidental Take of all Yellow-Faced Bee of all life stages in the form of harassment, harm, or mortality caused by Conservation Measures including but not limited to conservation, vegetation management, and maintenance activities in and immediately adjacent to the Conservation Area.

13.1.3 Estimated Take of Hawaiian Stilt Within the Conservation Area. Incidental Take in the form of harassment, harm, or mortality to three (3) Hawaiian Stilt as the result of predator trapping, conservation, vegetation management and maintenance activities.

13.1.4 Estimated Take of Hawaiian Coot Within the Conservation Area. Incidental Take in the form of harassment, harm, or mortality to three (3) Hawaiian Coot as the result of predator trapping, conservation, vegetation management and maintenance activities.

13.2 Estimated Take in Other Areas. The Parties estimate the Incidental Take of Covered Species within the Other Areas over the term of this Agreement as described in Sections 13.2.1 to 13.2.4 of this Agreement.

13.2.1 Estimated Take of Damselfly in Other Areas. Incidental Take of all individuals of all life stages in the form of harassment, harm, or mortality of Damselfly resulting from Covered Activities.

13.2.2 Estimated Take of Yellow-Faced Bee in Other Areas. Incidental Take has been and will continue to be avoided outside the Conservation Area on Enrolled Property. In this Agreement, Incidental Take coverage is not requested by Pūlama Lānaʻi or authorized by the Service or DLNR for Yellow-Faced Bee in Other Areas.

13.2.3 Estimated Take of Hawaiian Stilt in Other Areas. Incidental Take has been and will continue to be avoided outside the Conservation Area on Enrolled Property. In this Agreement, Incidental Take coverage is not by requested by Pūlama Lānaʻi or authorized by the Service or DLNR for Hawaiian Stilt in Other Areas.

13.2.4 Estimated Take of Hawaiian Coot in Other Areas. Incidental Take has been and will continue to be avoided outside the Conservation Area on Enrolled Property. In this Agreement, Incidental Take coverage is not by requested by Pūlama Lānaʻi or authorized by the Service or DLNR for Hawaiian Coot in Other Areas.

14. NET CONSERVATION BENEFIT

The Parties anticipate this Agreement will result in the creation of suitable habitat for the Damselfly in the Conservation Area, and result in an increase in the number, distribution, and/or total area of occupied suitable habitat of the Damselfly in their range. Without these Conservation Management activities, the Conservation Area would not otherwise be utilized by the Damselfly in the foreseeable future.

The Parties expect this Agreement to result in the following conservation benefits to the Covered Species: establishment of new habitat for the Covered Species where none currently exists; establishment of a protected, fenced, ungulate-free area with aquatic breeding habitat maintained free of predatory fish for the Damselfly; establishment of a new population of the Damselfly; establishment of a fenced, ungulate-free, and predator-controlled habitat containing surface water for Hawaiian Coot and Hawaiian Stilt; establishment of forage, cover, and potential nesting resources for the Yellow-Faced Bee; increased ranges for Covered Species thereby helping to protect against catastrophic loss of the species; decreased predator populations and abatement of ecological damage precipitated by ungulates and invasive plant species; increased collaborative recovery efforts between the Service, DLNR, and Pūlama Lānaʻi; and increased opportunity for environmental education and conservation public outreach.

The Parties have determined that measures listed above are expected to benefit more individuals of Covered Species than will be taken by managment actions during the term of the Agreement.

14.1 Net Conservation Benefit to Damselfly. The Parties agree that Conservation Measures in this Agreement directly benefit the Damselfly. The Conservation Measures are expected to lower the risk of extinction by establishing a new population of the Damselfly. This new population of the Damslefly will preserve a sample and potential future cohorts of the species' existing genetic diversity that can be utilized in the future to seed additional populations of the Damselfly within its historical range and lessen the probability of extinction or extirpation. Take of the Damselfly from Conservation Measures and Covered Activities is expected as described in Section 13 of this Agreement, including but not limited to activities during pond draining or maintenance necessary to sustain the habitat. The Parties agree that the number of Damselfly produced by the Conservation Measures in the Conservation Area will substantially exceed the level of anticipated Take of the Damselfly that may occur from Conservation Measures on the Enrolled Property, including but not limited to pond maintenance activities. In addition, the introduction of the Damselfly to the Conservation Area and the associated monitoring required by the Agreement helps inform future introductions of the Damselfly (or other listed damselfly species) to other sites within their historical range in Hawai'i to aid in recovery of the species. As indicated in Section 2.1 of this Agreement, the Damselfly recovery plan includes a recovery action to reintroduce the species to the island of Lāna'i. The Parties agree that the Conservation Measures in the Conservation Area provide a Net Conservation Benefit to the Damselfly.

14.2 Net Conservation Benefit to Yellow-Faced Bee. The Parties agree that Yellow-Faced Bee benefit from the Conservation Measures in the Conservation Area described in Section 7 and Appendix A of this Agreement which include, but are not limited to, creation of habitat for foraging and possible nesting habitat in the Conservation Area where none existed before. The Parties expect the Conservation Measures to provide suitable food and nesting resources for the Yellow-Faced Bee as plants mature. Negative effects from Conservation Measures on the Enrolled Property, including but not limited to, maintenance activities of the Conservation Area are considered negligible and outweighed by the benefit to the Yellow-Faced Bee. The Parties agree that Conservation Measures in the Conservation Area provide a Net Conservation Benefit to the Yellow-Faced Bee.

14.3 Net Conservation Benefit to Hawaiian Stilt and Hawaiian Coot. The Parties agree that Hawaiian Stilt and Hawaiian Coot benefit from the Conservation Measures in the Conservation Area described in Section 7 and Appendix A of this Agreement which include, but are not limited to, creation of small areas of predator-free habitat where no foraging and nesting habitat currently exists. The Parties agree that given the size of the Conservation Area and the territoriality of individuals of these two waterbird species, the ponds and habitat in the Conservation Area are not likely to support a large population of waterbirds or increase dispersal to other parts of the island; rather, the area is most likely to host temporary foraging by individuals or small numbers of waterbirds, or a few (<10) individuals that choose to nest.

Conservation Measures in the Conservation Area, including, but not limited to, routine maintenance of the predator proof enclosure could result in harassment or harm to the waterbird inhabitants, causing temporary flushing of a foraging bird from the Conservation Area. However, the Parties expect these to be extremely rare events given the avoidance and minimization measures in place that reduce and eliminate noise and activites if either of the Covered Species are present in the Conservation Area. Predator control failures and maintenance activities may result in lethal Take but are expected to be extremely rare events. The Parties agree that creation of the Conservation Area provides foraging and nesting benefits for the Hawaiian Coot and Hawaiian Stilt. The Parties Agree that the Conservation Area provides foraging and nesting services to the Covered Species for the term of this Agreement which is an overall Net Conservation Benefit to the Hawaiian Coot and Hawaiian Stilt.

15. EVALUATION AND ADAPTIVE MANAGEMENT

Table 2 includes adaptive management responses addressing exceedance of specified indicator thresholds. Should fact patterns arise indicating the need for adaptive management measures, the Parties will discuss the matter, and may mutually agree upon such measures as are necessary to achieve and maintain a Net Conservation Benefit for Covered Species, including the measures set forth in Table 2. Fact patterns indicating the need for adaptive management measures may include, without limitation: (1) changing conditions or new information; (2) if the Conservation Measures do not yield the expected results and appear ineffective. The Parties agree that their decisions regarding Adaptive Management will be based on their evaluation of the compliance and biological monitoring results detailed in the annual reports.

Adaptive Management decisions can be made at any time as mutually deemed necessary by the Parties.

The Parties will evaluate the fifth annual report to: (1) ensure that the Conservation Measures are achieving the Net Conservation Benefit defined in this Agreement; (2) determine whether the Conservation Measures result in increased protection to the Covered Species on the Enrolled Property; (3) assess Incidental Take on the Enrolled Property to determine if Take associated with the implementation of the Covered Activities and Conservation Measures may be preventing the recovery of the species and if Take can be prevented or reduced through modifications to management actions. If all Parties agree that Conservation Measures should be altered to improve benefits for the species, this will be documented in a written amendment to this Agreement. After reviewing strategies to reduce Incidental Take, Pūlama Lānaʻi shall have sole discretion whether to implement new strategies.

Table 2 Adaptive Management

Species / Feature	Indicator	Thresholds (if known)	Response
Damselfly	Evidence of Take	Any unanticipated Take on all Enrolled Property	Review avoidance and minimization measures with Megalagrion Working Group.*
	Abundance	Fewer than three adult Orangeblack Damselfly observed for each of three consecutive surveys	Evalute reasons for decreased abundance (e.g., water quality, predation, and other parameters) with assistance from the Megalagrion Working Group.*
Habitat: Water Quality	Water temperature in Conservation Area ponds	Temperature outside of 68-82.5˚ F (20-28˚ C) or the current known range.	Increase shade cover; cycle water from source system.
	Water level in Conservation Area ponds	Water level falls below 4 inches in depth in the deepest part of the pool.	Add water, implement sediment removal or other maintenance activities (as described in Conservation Measures), or other approaches in consultation with Megalagrion Working Group.*
	Evidence of Take	Any unanticipated Take in the Conservation Area	Cease activities that may have contributed to Take and modify activities in consultation with the Service and DLNR to avoid future Take.

Hawaiian Stilt and Hawaiian Coot	Evidence of Take	Any unanticipated Take in the Conservation Area	Cease activities that may have contributed to Take and modify activities in consultation with the Service and DLNR to avoid future Take.
Yellow-Faced Bee	Evidence of Take	Any unanticipated Take in the Conservation Area	Cease activities that may have contributed to Take and modify activities in consultation with the Service and DLNR to avoid future Take.

* If the Megalagrion Working Group is not promptly available or no longer exists, Pūlama Lānaʻi shall review, obtain assistance from, or consult with the Service and DLNR.

The Parties agree that the presence or absence of Hawaiian Stilt, Hawaiian Coot, and Yellow-Faced Bee at the Conservation Area, is not a measure of success for the Agreement. Therefore, the presence or absence of Hawaiian Stilt, Hawaiian Coot, and Yellow-Faced Bee do not require Adaptive Management beyond the minimization and avoidance measures described in Section 7 and Appendix A of this Agreement.

16. RESPONSIBILITIES OF THE PARTIES

The Parties agree to the following additional responsibilities under this Agreement. The Parties may seek the assistance and support of third parties to implement this Agreement, but involvement from third parties shall in no way change the responsibility and obligation for the Parties to implement this Agreement.

16.1 Pūlama Lānaʻi Responsibilities. Pūlama Lānaʻi shall:

(1) Report to the Service and DLNR all activities related to, or affecting, its Conservation Measures for Covered Species on Enrolled Property.

(2) Hold the Permit and License for the term of this Agreement, unless the Agreement is terminated pursuant to Section 22.2 of this Agreement, or suspended or revoked pursuant to Section 22.3 of this Agreement.

(3) Conduct Conservation Measures and the avoidance and minimization measures described in Sections 7 and 8 and Appendix A of this Agreement on the Enrolled Property.

(4) Pursuant to Sections 10.3 and 10.4 of this Agreement, allow access by the Service, DLNR, or other mutually agreed upon parties to the Conservation Area (with reasonable prior notice) for purposes related to translocation, surveys/monitoring of Covered Species, management, or conservation activities, as described in this Agreement.

(5) Report to the Service and DLNR any dead, injured, or ill Covered Species on the Enrolled Property.

(6) Notify the Service sixty (60) calendar days in advance of any planned activity that Pūlama Lānaʻi reasonably anticipates will result in death, injury or harm to Covered Species on the Enrolled Property.

(7) Notify the Service and DLNR by e-mail or phone within forty-eight (48) hours of any unexpected death, injury or harm to Covered Species on the Enrolled Property, including death, injury of harm from Conservation Measures or Covered Activities.

(8) Provide annual reports to the Service and DLNR as described in Section 11 of this Agreement.

(9) Notify the Service and DLNR sixty (60) days prior to returning the Enrolled Property to the Baseline Conditions and describe the actions that would result in the return to baseline.

16.2 Service Responsibilities. The Service shall:

(1) Determine whether to execute this Agreement and issue an Enhancement of Survival Permit (a "**Permit**") to Pūlama Lānaʻi in accordance with applicable laws.

(2) Monitor compliance with the terms of the Agreement and provide comments on the annual report.

(3) Promptly provide Pūlama Lānaʻi, and/or the designee of Pūlama Lānaʻi with technical assistance when requested (or as needed), to implement this Agreement.

(4) Recommend procedures that Pūlama Lānaʻi can take to avoid future Incidental Take of Covered Species based on Incidental Take of Covered Species, if any, described in past annual reports.

16.3 DLNR Responsibilities. DLNR shall:

(1) Upon signing of this Agreement, issue an Incidental Take License (a "**License**") to Pūlama Lānaʻi in accordance with HRS § 195D-22(b) authorizing Incidental Take of the Covered Species as a result of lawful activities within the Enrolled Property.

(2) Monitor compliance with the terms of the Agreement and provide comments on the annual report.

(3) Promptly provide Pūlama Lānaʻi, and/or the designee of Pūlama Lānaʻi with technical assistance in consensus with the Service when requested (or as needed), to implement this Agreement.

(4) Recommend procedures that Pūlama Lānaʻi can take to avoid future Incidental Take of Covered Species based on Incidental Take of Covered Species, if any, described in past annual reports.

(5) Oversee and conduct translocation of Damselfly from other islands to Lānaʻi and introduce Damselfly into the Conservation Area in accordance with current federal and state permits and cooperative agreements, subject to the availability of funds.

(6) Report to the Service all activities related to translocation of Damselfly in accordance with federal and state permits and cooperative agreements.

(7) Record this Agreement, as appropriate, pursuant to HRS § 195D-22(d).

17. AGREEMENT, PERMIT, AND LICENSE DURATION

17.1 Duration of Conservation Agreement, Permit, and License. The Agreement will be in effect for fifty (50) years following the Effective Date, unless the Agreement is terminated pursuant to Section 22.2 of this Agreement or suspended or revoked pursuant to Section 22.3 of this Agreement. The term of the Permit and License would be fifty (50) years. Nothing in this Agreement is intended to bind the Service or United States as a matter of State property law or State contract law.

17.1.1 Permit. The Agreement will be in effect for the duration of the Permit. The Permit may be suspended in accordance with the terms of this Agreement and applicable law. The Agreement and the Permit may be extended beyond their specified durations through amendment, with concurrence of all Parties and in compliance with applicable legal requirements in place at that the time.

17.1.2 License. The respective rights and obligations of the Pūlama Lānaʻi and DLNR in this Agreement under State law shall run with the ownership of the Enrolled Property, which shall be recorded by DLNR in the Bureau of Conveyances or the Land Court, as may be appropriate, according to HRS §195D-22(d).

18. ASSURANCES REGARDING TAKE OF THE COVERED SPECIES

The Permit and License each authorize Incidental Take, and purposeful Take necessary for the implementation of the Agreement, of the Covered Species, their eggs, and their progeny, or alteration of occupied habitat, resulting from Conservation Measures and other Covered Activities during the term, from the time this Agreement is signed until the expiration or suspension of the Permit or License.

The Permit does not authorize the Covered Activities themselves; rather it authorizes only the Take of the covered species resulting from those activites as set forth in 50 CFR §§ 17.22(c)(1) and 17.32(c)(1).

Nothing in this Agreement prevents Pūlama Lānaʻi from implementing other management activities not described in the Agreement, as long as such actions do not materially degrade the original Baseline Conditions defined herein, are not likely to result in Incidental Take of the Covered Species, and do not reduce the Net Conservation Benefit to Covered Species described in Section 14 of this Agreement.

19. NOTIFICATION REQUIREMENT

For planned actions that Pūlama Lānaʻi determines are likely to result in Incidental Take on Enrolled Property, Pūlama Lānaʻi agrees to provide the Service and DLNR with an opportunity to rescue individuals of the Covered Species before any authorized Incidental Take occurs. Notification that Take is likely to occur must be provided by Pūlama Lānaʻi to the Service at least sixty (60) days in advance of the action. Provided, however, that no such notice shall be required for Conservation Measures on Enrolled Property.

20. FUNDING

Pūlama Lānaʻi will provide the necessary funding to implement the Conservation Measures and monitoring and reporting as described in Sections 7, 8, and 10, and Appendix A of this Agreement.

Pūlama Lānaʻi may, but is not required to, delegate its obligations under this Agreement.

Delegation of obligations under this Agreement shall not relieve Pūlama Lānaʻi of the requirements set forth in Section 7 and Appendix A of this Agreement.

21. ASSURANCES

Neither the Service nor DLNR may impose new requirements or conditions on, or modify any existing requirements or conditions applicable to Pūlama Lānaʻi, the Conservation Area or Other Areas under this Agreement without the consent of Pūlama Lānaʻi, except as provided by applicable law (*see* 50 CFR 17.22(c)(5) and 17.32(c)(5), and HRS §195D-23(a)).

22. OTHER PROVISIONS

22.1 Amendments. Any party may propose amendments to this Agreement in accordance with all applicable State and Federal regulations, which may include, but are not limited to, the Endangered Species Act, the National Environmental Policy Act, and the Service's permit regulations at 50 CFR Part 13 and 50 CFR Part 17, by providing written notice to, and obtaining the written concurrence of, the other Parties. Such notice shall include a statement of the proposed modification, the reason for it, and its expected results. The Parties will use their best efforts to respond to proposed modifications within sixty (60) days of receipt of such notice. Proposed amendments shall be set forth in writing and will become effective upon all Parties' execution thereof. The Service and DLNR will each determine whether a proposed amendment requires additional environmental compliance, e.g., NEPA/HEPA compliance, prior to approving the proposal.

22.2 Termination of the Agreement, Permit, or License. Pūlama Lānaʻi may terminate implementation of the Agreement even if the expected benefits have not been realized.

If the Agreement is terminated, Pūlama Lānaʻi is required to surrender the Permit at termination, thus relinquishing its Take authority and the assurances granted by the Permit. Prior to relinquishing the Permit, Pūlama Lānaʻi may return the Enrolled Property to Baseline Conditions described in Section 4 of this Agreement, after providing sixty (60) days prior notice. Pūlama Lānaʻi is required to give sixty (60) days prior written notice of its intent to terminate the Agreement and must give the Service and DLNR access to the Conservation Area during such 60-day period as set forth in Section 16.1 above to relocate affected species.

This Agreement shall immediately expire upon the earliest of the following: fifty (50) years from the Effective Date; termination of the Permit by the Service; or suspension or rescission of this Agreement by the DLNR's Board as set forth in HRS § 195D-22(c).

If the Agreement is not extended prior to the termination date, Pūlama Lānaʻi will provide the Service and DLNR access to the Conservation Area as set forth in Section 16.1 above to relocate Covered Species.

22.3 Suspension and Revocation. The Service may suspend or revoke the Permit for cause in accordance with the laws and regulations in force at the time of such suspension or revocation (currently codified at 50 C.F.R. 13.28(a)). The Service also, as a last resort, may revoke the Permit in accordance with applicable regulations in effect at the time (currently codified at 50 CFR 17.22(c)(7) and 17.32 (c)(7)) if continuation of permitted activities would likely result in jeopardy to covered species. The Service will revoke because of jeopardy concerns only after first implementing all practicable measures to remedy the situation. In the event the Permit is revoked, the Service's participation in this Agreement shall automatically terminate.

DLNR may request that the Board suspend or revoke this Agreement for the reasons set forth in the applicable law (currently codified in HRS §195D-22(c)).

22.4 Dispute Resolution. The Parties agree to work together in good faith to resolve any disputes, using dispute resolution procedures agreed upon by all Parties. In the event of a breach by a party to this Agreement, the other party shall have the right from time to time to enforce any and all legal and equitable remedies which may be available against such party, including, without limitation, injunctive relief and specific performance. However, except where irreparable harm would otherwise result to a party, if a dispute arises out of or relates to this Agreement, or the breach thereof, and if said dispute cannot be settled through negotiation, the parties agree first to try in good faith to settle the dispute by mediation utilizing a recognized mediation service mutually agreed to by the parties before resorting to litigation or some other dispute resolution procedure.

22.5 Remedies. Subject to paragraph 22.13, each Party shall have all remedies otherwise available to them under applicable law to enforce the terms of the Permit and the License, each of which shall incorporate this Agreement, except that no Party, either in a personal or fiduciary capacity, shall be liable in damages for any breach of this Agreement, any performance or failure to perform an obligation under this Agreement or any other cause of action arising from this Agreement. In the event the Permit is revoked, the Service's participation in this Agreement shall automatically terminate.

22.6 Succession and Transfer. This rights and obligations of Pūlama Lānaʻi under this Agreement, the Permit, and the License, may be assumed by or transferred to a third party, subject to compliance with applicable law, including without limitation as set forth in 50 C.F.R. §§13.24 and 13.25, as applicable.

For purposes of the State of Hawai'i, the rights and obligations of this Agreement shall run with the land for the term agreed upon hereto, as provided by HRS § 195D-5(d).

22.7 Availability of Funds. Implementation of this Agreement by the Service is subject to the requirements of the Anti-Deficiency Act and the availability of appropriated funds. Nothing in this Agreement will be construed by the Parties to require the obligation, appropriation, or expenditure of any funds from the U.S. Treasury. The Parties acknowledge that the Service and DLNR will not be required under this Agreement to expend any Federal or State agency's appropriated funds unless and until an authorized official of that agency affirmatively acts to commit to such expenditures as evidenced in writing.

22.8 No Third-Party Beneficiaries. This Agreement does not create any new right or interest in any member of the public as a third-party beneficiary, nor shall it authorize anyone not a party to this Agreement to maintain a suit for personal injuries or damages pursuant to the provisions of this Agreement. The duties, obligations, and responsibilities of the Parties to this Agreement with respect to third parties shall remain as imposed under existing law.

22.9 Other Listed Species. Although the Service and DLNR regard it as unlikely, the possibility exists that other listed, proposed, or candidate species, or species of concern may occur in the future on the Enrolled Property as a direct result of the Conservation Measures by Pūlama Lānaʻi, but if that occurs and the Pūlama Lānaʻi so requests, the Parties may amend the Agreement and associated Permit and License to cover additional species and establish appropriate baseline conditions for such other species.

22.10 Notices and Reports. Any notices and reports, including monitoring and annual reports, required by this Agreement shall be delivered to the persons listed below, as appropriate. Names and addresses may be changed by written notice to all Parties.

Director of Conservation
Lānaʻi Resorts, LLC, dba Pūlama Lānaʻi
P.O. Box 630310
Lānaʻi City, Hawaiʻi 96763

Field Supervisor, Pacific Islands Office
U.S. Fish and Wildlife Service
300 Ala Moana Boulevard, Room 3-122
P.O. Box 50088
Honolulu, Hawaiʻi 96850

Administrator, Division of Forestry and Wildlife
Department of Land and Natural Resources
State of Hawaiʻi
1151 Punchbowl Street
Honolulu, Hawaiʻi 96813

22.11 Relationship to the ESA and Other Authorities. The terms of this Agreement shall be construed in accordance with the ESA, HRS Chapter 195D and associated implementing regulations, and other applicable State and Federal laws. Nothing in this Agreement is intended to supersede the requirements of the ESA or limit the authority of the Service to enforce or otherwise fulfill its responsibilities under the ESA. Nothing in this Agreement will limit the right or obligation of any federal agency to engage in consultation required under section 7 of the ESA or other federal law.

22.12 Applicable Laws. All activities undertaken pursuant to this Agreement must be in compliance with all applicable state and federal laws and regulations. Pūlama Lānaʻi has not applied for or sought, and will not receive, any Federal financial assistance (as defined by Title VI of the Civil Rights Act of 1964, as amended, and its implementing regulations) through this Agreement or the associated Permit.

22.13 No Federal or State Contract. Notwithstanding any language to the contrary, this Agreement is not intended to create, and shall not be construed to be a legally enforceable

contract between or among Pūlama Lānaʻi, the United States, the Service, the State of Hawaiʻi, or any other party.

IN WITNESS WHEREOF, THE PARTIES HERETO have, as of the last signature date below, executed this Conservation Agreement to be in effect as of the date that the Service issues the permit.

Lānaʻi Resorts, LLC, a Hawaii limited liability company, dba Pūlama Lānaʻi
By Lanai Island Holdings, LLC, its Member
By LIH Corporation, its Manager

By:_____ _____
Kurt Matsumoto Date
Vice President

United States Fish and Wildlife Services

By:_____ _____
Deputy Regional Director Date
U.S. Fish and Wildlife Service
Portland, Oregon

State of Hawai‘i
Department of Land and Natural Resources

*Public hearing held on Lāna‘i
on _____

*Approved by the Board
of Land and Natural Resources
at its meeting on
_____

By: _____ _____
Chairperson Date
Board of Land and Natural Resources

APPROVED AS TO FORM:

By: _____
Deputy Attorney General

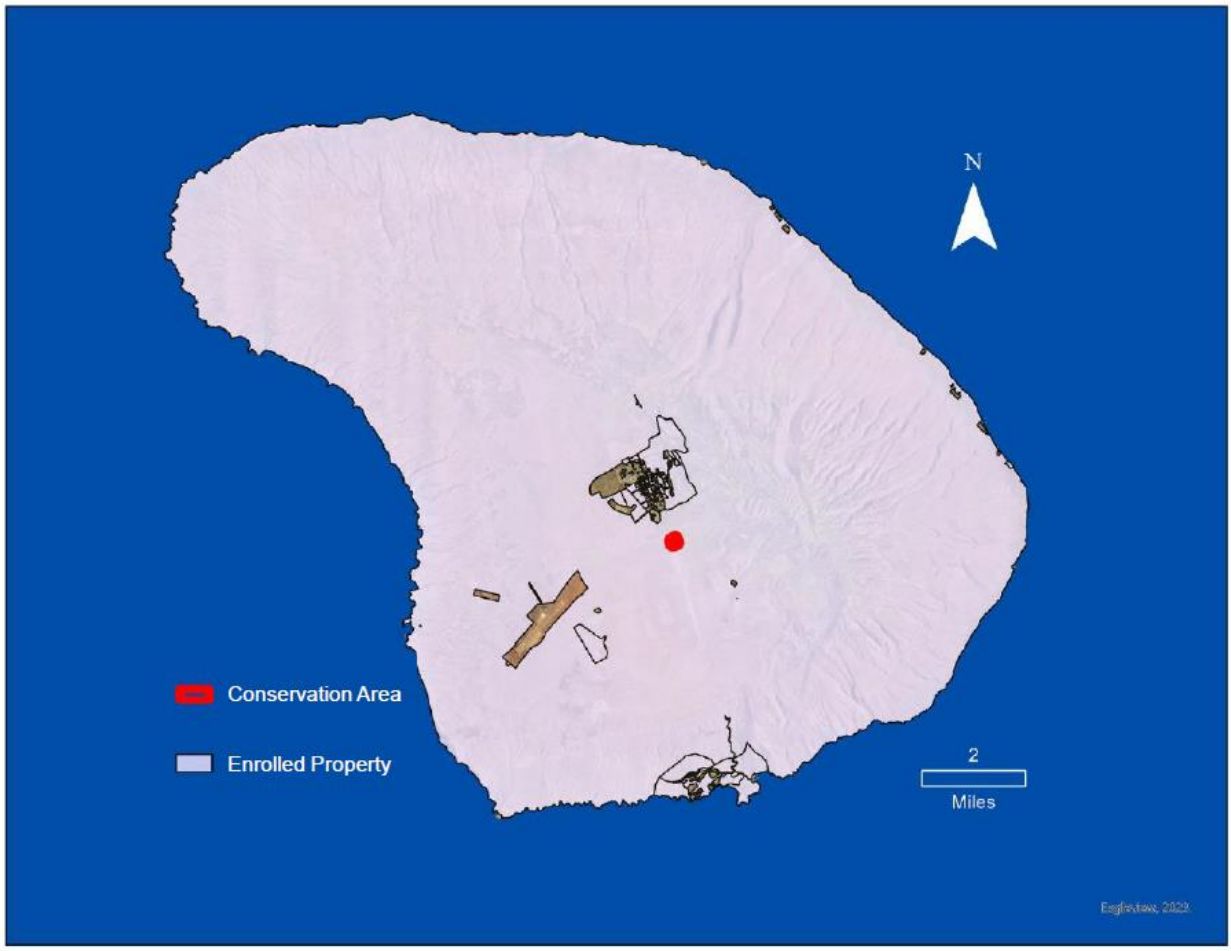

Figure 1.
The Island of Lānaʻi, showing the location of the Conservation Area (in red) and Other Areas (in grey)

Figure 2.
Site map of the Conservation Area

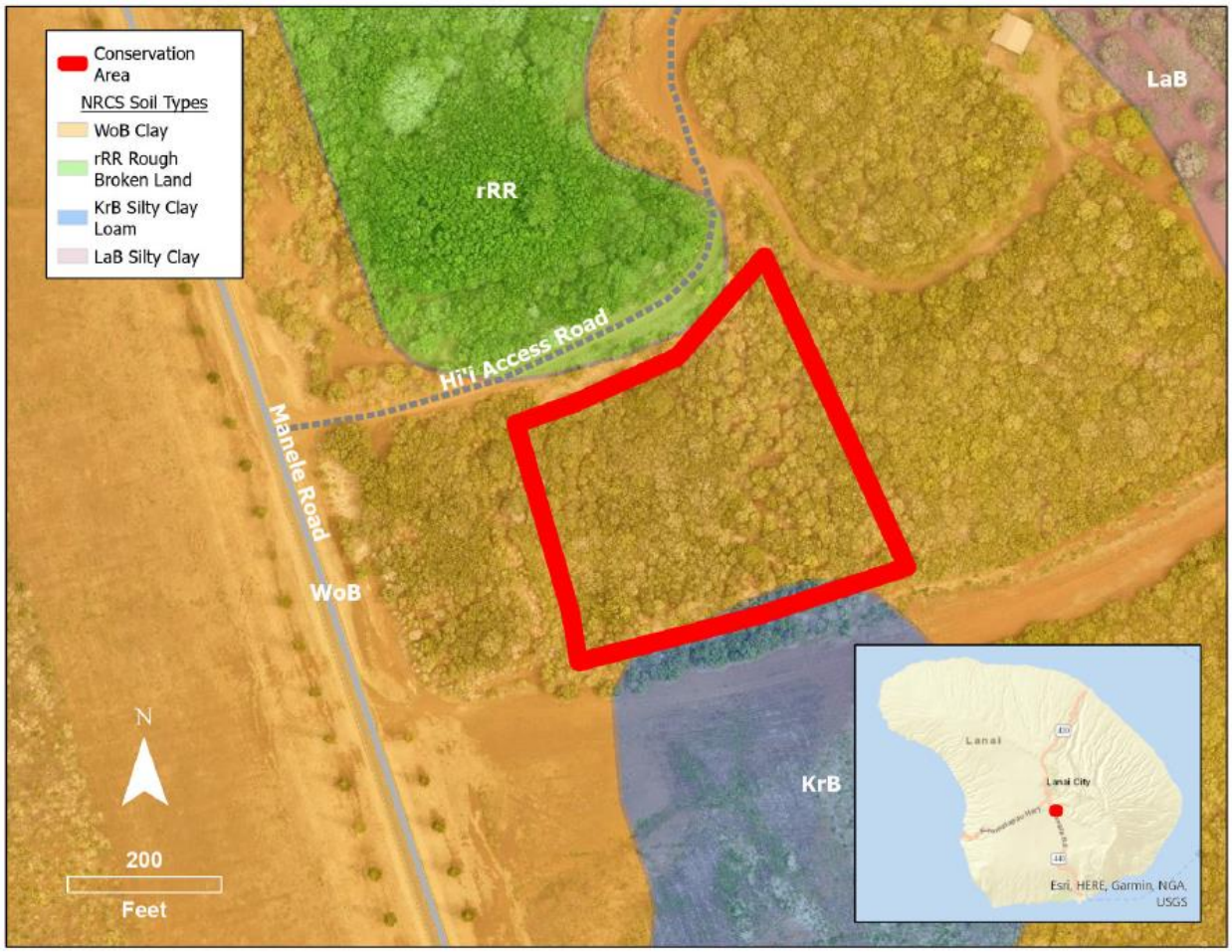

Figure 3.
Site map of the Conservation Area showing soil types from the NRCS Cooperative Soil Survey

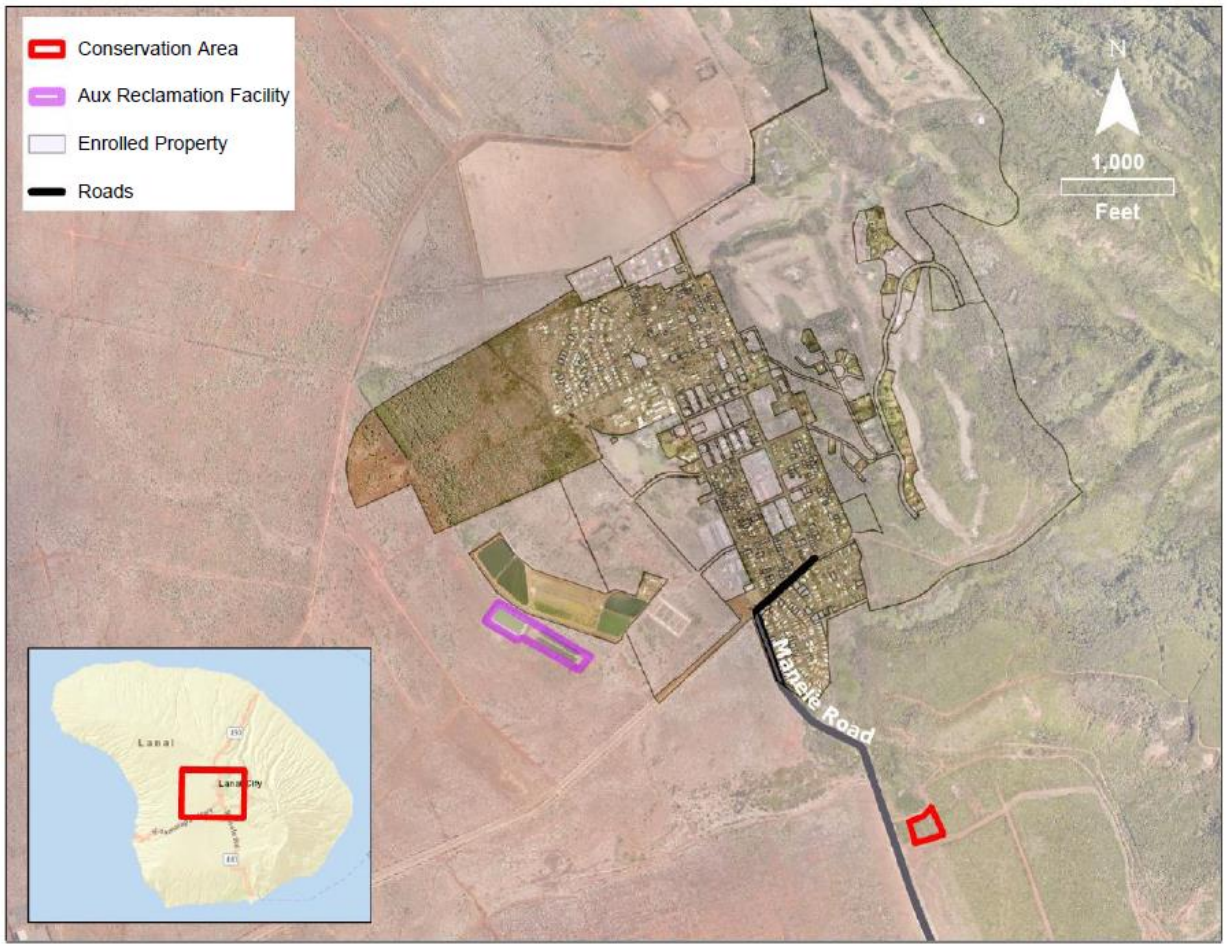

Figure 4.
Map showing the Conservation Area (in red), the Auxiliary Reclamation Facility (in purple) and Enrolled Property (in grey)

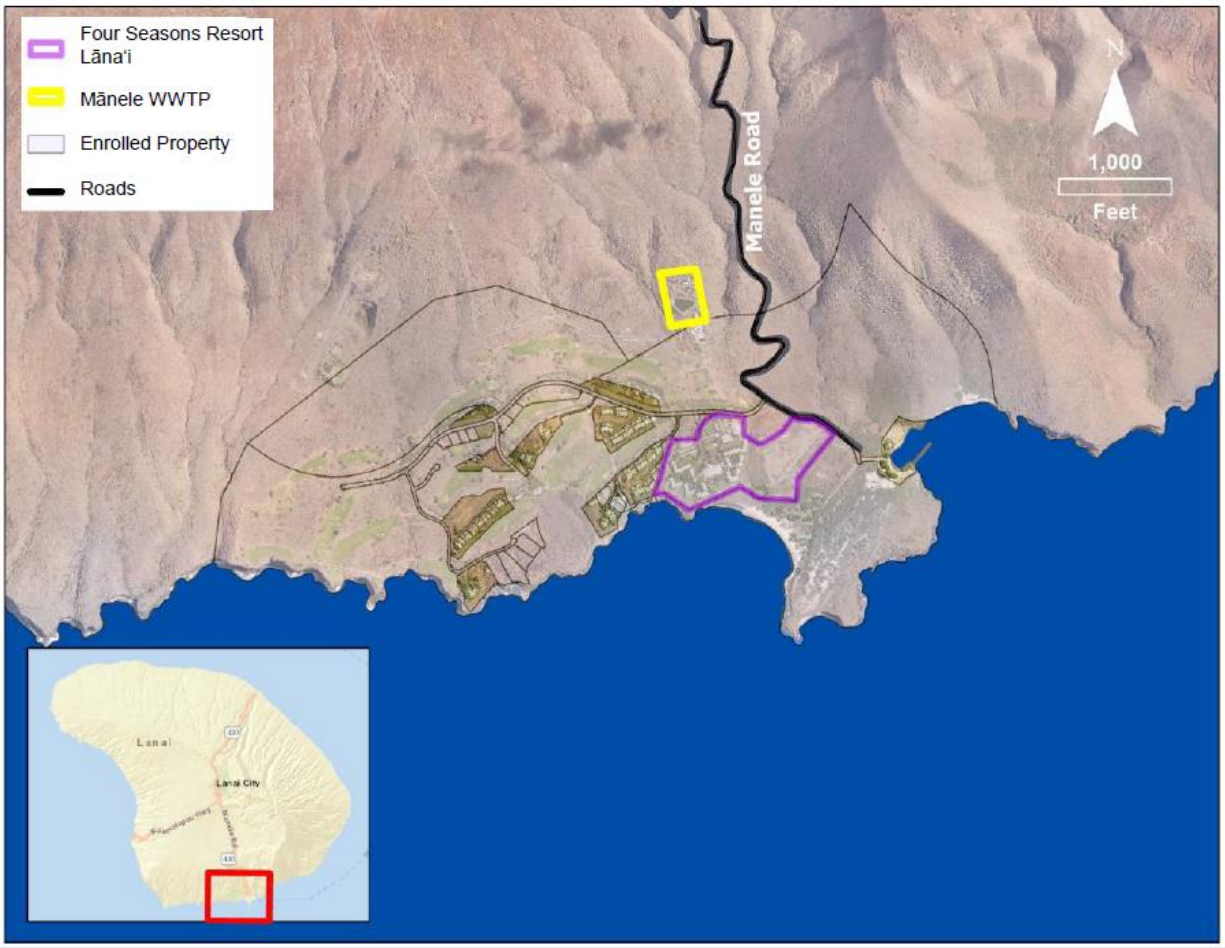

Figure 5.
Map showing the location of the Four Seasons Resort Lāna‘i (in purple), the Mānele Wastewater Treatment Plant (in yellow) and Enrolled Property (in grey)

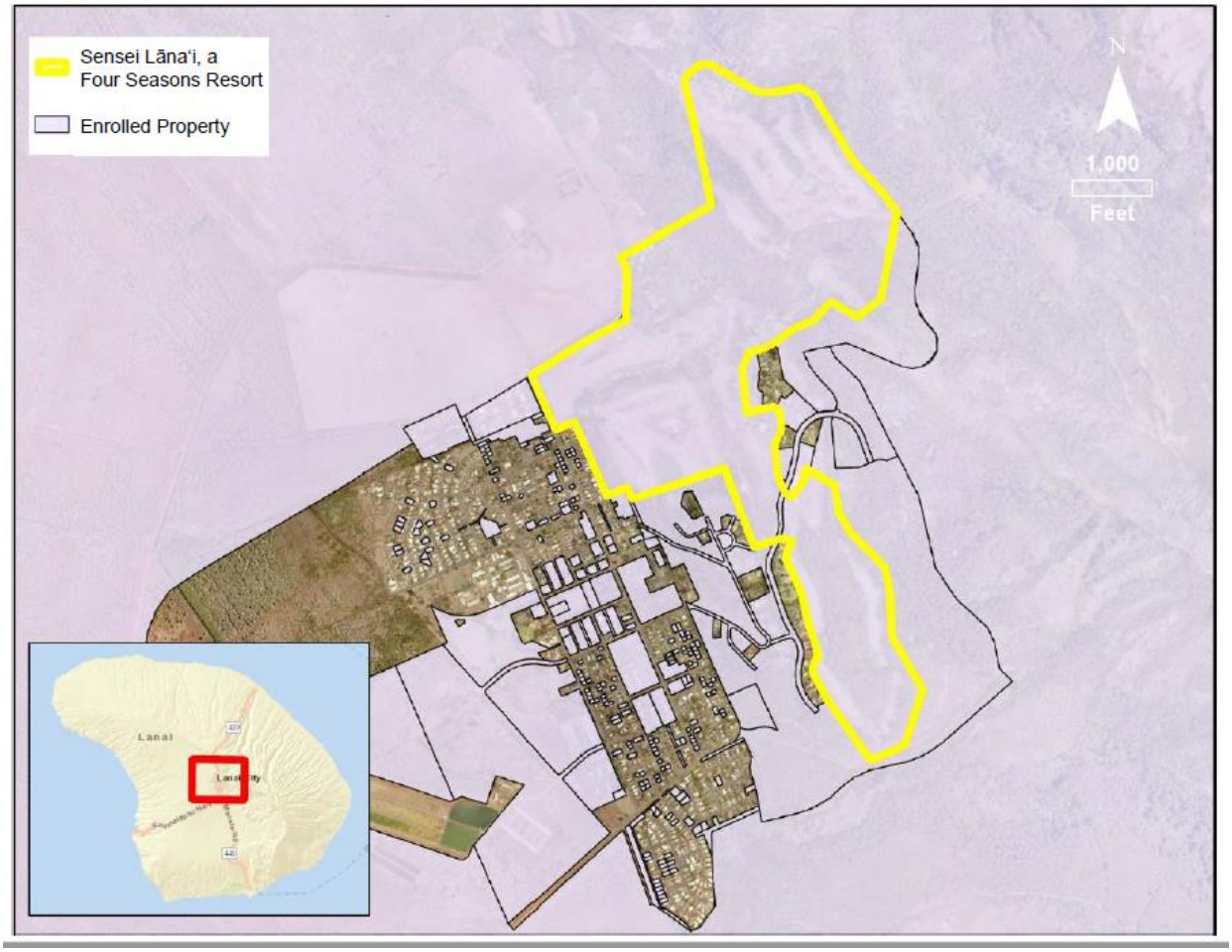

Figure 6.
Map showing the location of Sensei Lāna'i, a Four Seasons Resort (in yellow) and Enrolled Property (in grey)

Appendix A

Conservation Measures for the Orangeblack Hawaiian Damselfly in the Conservation Area

_____, 2024

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1. Fence Construction and Maintenance. Pūlama Lānaʻi[1] will undertake the following Conservation Measures related to construction and maintenance of the fence in the Conservation Area:

(1) Obtain permits as applicable for grading and/or grubbing and fence construction.

(2) Grub woody invasive plant species in the Conservation Area with a forestry mulcher.

(3) Construct an ungulate exclusion fence around part or all of the Conservation Area, comprising posts, plastic and/or metal fence mesh and skirting, fastened and secured with hog rings and other hardware components as necessary. The length and placement of the fence shall be within the sole discretion of Pūlama Lānaʻi, and may be constructed using gas-powered augers and post drivers.

(4) Remove ungulates within the fenced area.

(5) Conduct ungulate monitoring.

(6) Regularly inspect the fenceline for evidence of ungulate ingress and tree fall.

(7) Repair and/or replace the fenceline as it in its sole discretion deems necessary due to deterioration.

(8) Promptly remove any ungulates that surmount the fence.

2. Minimization and Avoidance Measures During Fence Construction and Maintenance. Pūlama Lānaʻi will ensure that the following minimization and avoidance measures are implemented in the Conservation Area during fence construction and maintenance:

(1) Prior to ground disturbance, staff trained to recognize the Covered Species, listed species, and avian species protected under the Migratory Bird Treaty Act that may nest in the degraded habitat, will conduct a survey for nests and avoid disturbing occupied nests until the nest of the protected species is no longer occupied.

(2) Staff undertaking fence maintenance will: (a) be properly trained to recognize Covered Species and measures to avoid negative impacts on the Covered Species, or (b) will be directly supervised by an individual properly trained to

[1] Capitalized terms in this document shall have the meanings defined in the Conservation Agreement for Introduction of Endangered Orangeblack Hawaiian Damselfly (*Megalagrion xanthomelas*) to a Conservation Area on the island of Lānaʻi.

recognize Covered Species and measures to avoid negative impacts on the Covered Species.

(3) Survey a fifty (50) ft buffer around the work area to identify any Covered Species before any fence maintenance activity or ungulate control is initiated.

(4) If Hawaiian Stilt or Hawaiian Coot nesting activity is detected within the Conservation Area, avoid loud noise generating maintenance activities until any breeding activity ceases, and/or chicks fledge.

(5) Prohibit the use of barbed wire fencing in the Conservation Area to protect the Hawaiian hoary bat.

(6) Do not trim, prune, or remove trees over 15 ft in the Conservation Area between June 1 – September 15 to avoid Take during Hawaiian hoary bat pupping season;

(7) Install reflective "cool tape" in a zigzag fashion at the uppermost one foot of the fence, as well as two courses of linear taping on the mid sections of the fence along the entire length to make the fence more visible to bats and birds; and

(8) Implement a zero-tolerance policy for ungulates within the fenced area.

3. Artificial Pond Construction and Maintenance. Following construction of the fence, Pūlama Lānaʻi will undertake the following Conservation Measures related to construction and maintenance of the artificial pond in the Conservation Area.

(1) Obtain permits, as applicable, for grading and small pond installation; this may include use of a forestry mulcher to remove invasive Formosan koa trees, and dozer and front-loader equipment to allow for level installation of ponds. The site number and location of the pond(s) and the extent of grading shall be within the discretion of Pūlama Lānaʻi.

(2) Install liners or preformed ponds made of plastic, vinyl, fiberglass, or other material based on the manufacturer's instructions. At least one small pond will be installed (5-8 ft x 8-13 ft in surface area), and the eventual number of ponds will be coordinated with the Service and DLNR depending on the availability of funding, material, staff and any adaptive lessons learned as the program matures. The extent of funding shall be within the sole discretion of Pūlama Lānaʻi.

(3) Supply water to the ponds which is free of predatory fish. Capacity of the shallow, artificial ponds will range from 250-800 gallons to entirely fill, so overall daily water usage will be low. The amount and source of water shall be within the sole discretion of Pūlama Lānaʻi, and as not prohibited by the Hawaii Water Code, Hawaii Revised Statutes Chapter 174C.

(4) The waterline connection to the ponds will be permanent and run from an existing meter of the Lānaʻi Water Company. Plumbing at the ponds will include float valves to prevent accidental overflow. Input plumbing will be located near the top of the pond at the water surface to minimize turbidity caused by disturbance of accumulated sediment within the pond.

(5) Nothing in this Agreement shall require Pūlama Lānaʻi to provide water for the Conservation Area if sufficient groundwater is not available, or if there is any dispute over the use of groundwater resources on Lānaʻi.

(6) Monitor the water temperature and level in the ponds at least weekly, and as often as daily.

(7) Pūlama Lānaʻi shall conduct pH monitoring on a schedule solely within the sole discretion of Pūlama Lānaʻi. Pūlama Lānaʻi may also monitor other physical characteristics of the ponds including salinity, dissolved oxygen, nitrogen before and during introduction, and thereafter on a schedule within the sole discretion of Pūlama Lānaʻi. Water quality monitoring may be conducted either with remote sensing equipment or in person monitoring.

(8) Work with the Megalagrion Working Group to identify the best science practices to create and maintain suitable biotic habitat.

(9) Inspect the ponds at least quarterly for proper operation, evidence of damage, and invasive species occurrence.

(10) Remove unwanted vegetation on an annual basis or as needed to maintain the habitat. The extent of vegetation removal shall be reasonably necessary to achieve a benefit for the Damselfly, as jointly agreed by Pūlama Lānaʻi, the Service, and DLNR.

(11) Remove sediment as deemed necessary and appropriate, which may involve partial or complete draining of the ponds.

4. Minimization and Avoidance Measures During Pond Construction and Maintenance. Pūlama Lānaʻi will ensure that the following minimization and avoidance measures are implemented in the Conservation Area during pond construction and maintenance:

(1) All earthwork, vegetation clearing, and initial construction activities will take place before reintroduction of Covered Species.

(2) Trees over fifteen (15) feet will not be cut down June 1 – September 15 to avoid Hawaiian hoary bat pupping season.

(3) Backflow prevention valves will be installed at the connection to the water system to prevent source contamination.

(4) Float valves will be installed on water lines permanently affixed to reservoirs to maintain adequate water level and prevent accidental overflow.

(5) Plumbing of ponds will be situated to minimize turbidity.

(6) Rigid plastic fencing covers for any small water containers will be checked during routine visits to ensure no Covered Species are entangled.

(7) Before pond maintenance activities, survey of a fifty (50) foot buffer of the work to ensure avoidance and minimization of impact to Covered Species.

(8) Conduct a survey for Hawaiian Coot and Stilt nests or nest building behavior around the perimeter of the pond, and if any is detected, ensure the pond will not be drained until after any eggs have hatched, chicks fledged, nest has failed or nest building behavior ceases.

(9) To ensure continuous availability of breeding habitat for the Damselfly and other Covered Species, only one pond at a time will be emptied, and it will be refilled as quickly as possible once maintenance or repair has occurred.

(10) Before ponds are drained, any desirable aquatic vegetation at or below the water line that may contain Damselfly eggs will be removed and placed into a small holding tank or pond for the duration of the activity using Service and DLNR approved protocols. Any vegetation or plant parts more than 4 inches above the water line may be directly disposed of (safe to assume they do not contain eggs or naiads).

(11) Aquatic vegetation removed from ponds will be placed in a small containment reservoir on site for thirty (30) days to allow for any eggs present within the plant material to hatch before permanent disposal of the material. While vegetation is being held, the containment reservoir will be covered with mesh to prevent Damselfly from laying additional eggs in it. After thirty (30) days, the vegetation and the cover will be removed to allow developing Damselfly to emerge, and remaining water will be returned to the pond.

(12) Water will be removed by siphoning it out of the pond into a settlement tank to capture the majority of naiads and other invertebrates so they can be returned to the pond after it is refilled. If it is necessary to remove sediment, it will be removed manually using shovels or other methods that will not damage the pool or introduce predators or nontarget organisms into the system. Removed sediment will be piled onsite where it will not wash back into the pond.

5. Introduction of Damselfly by DLNR. DLNR staff shall introduce Damselfly to the Conservation Area under the terms of DLNR's recovery permit.

DLNR's collection and handling will take place in accordance with current federal and state permits for collection, handling, and reintroduction of the Damselfly. DLNR will collect Damselfly eggs in vegetation from wild or captive populations and transport them to Lānaʻi within forty-eight (48) hours of collection. DLNR staff will place eggs into ponds or smaller tubs at the reintroduction site and allowed to hatch. DLNR will inoculate ponds and smaller tubs with zooplankton from local freshwater wetlands to establish a prey base several weeks before introduction of damselfly eggs, with the source determined in consultation with DLNR, the Service, and the Megalagrion Working Group. DLNR will make an effort to use genetically diverse propagules from multiple populations deemed appropriate based on previous population genetic studies.

6. Minimization and Avoidance Measures during Damselfly Introduction. Pūlama Lānaʻi and DLNR shall cover initial tubs in which the Damselfly will be introduced with 1.5 to 2 inch-opening lightweight plastic fencing after they are filled to discourage dragonflies from laying eggs in them.

7. Outplanting. Pūlama Lānaʻi will outplant various common native plant species around the pond perimeters, as well as aquatic plants within the ponds. Pūlama Lānaʻi will incrementally outplant the ungulate-proof area with common native plants. The extent and type of outplanting shall be within the sole discretion of Pūlama Lānaʻi.

8. Minimization and Avoidance Measures in Connection with Outplanting. Pūlama Lānaʻi will ensure that the following minimization and avoidance measures are implemented in the Conservation Area during outplanting:

(1) Prior to any outplanting activity, a survey of a fifty (50) foot buffer around the work area will be surveyed to identify any Covered Species.

(2) All native plants will be produced, procured, and outplanted with consideration to historical range, suitability of site conditions, genetics, and potential impacts of climate change.

(3) Any rare plant propagule collection, propagation, and outplanting will take place in coordination with a professional botanist, the Service, DLNR, the Plant Extinction and Prevention Program, and Lyon Arboretum, and will be conducted under appropriate permits.

9. Vegetation Management. Pūlama Lānaʻi may use weed whips, chainsaws, forestry mulchers, and hand tools to manage vegetation.

Pūlama Lānaʻi may use herbicide to control weed species within the enclosure under supervision of a certified pesticide applicator utilizing methods and timing to minimize and avoid any potential contamination of water reservoirs or unintended impacts to native organisms.

Pūlama Lānaʻi may use mechanical removal and disposal to manage the ponds as a result of undesirable plant ingress.

10. Minimization and Avoidance Measures During Vegetation Management. Pūlama Lānaʻi will ensure that the following minimization and avoidance measures are implemented in the Conservation Area during vegetation management:

(1) Vegetation management activities will be planned and scheduled to avoid trampling, uprooting, chemically treating, or otherwise damaging native organisms whenever possible.

(2) Staff will be properly trained to recognize Covered Species and appropriate avoidance measures and/or directly supervised by such an individual.

(3) Prior to conducting vegetation management, a fifty (50) foot buffer around the work area will be surveyed to identify any Covered Species.

(4) If the Yellow-Faced Bee is detected, a buffer will be created for any herbicide use around ʻilima plants, in coordination with input from DLNR and the Service.

(5) Weed suppression through herbicide backpack spraying or squirt bottle application may occur year-round on the Conservation Area while observing safe buffers near any Covered Species.

(6) Plant material removed from at or below the waterline of the pond(s) will be placed in a small containment reservoir on site for thirty (30) days to allow for any eggs present within the plant material to hatch before permanent disposal of the material. Any vegetation or plant parts more than four (4) inches above the water line may be directly disposed of (safe to assume they do not contain eggs or naiads). While vegetation is being held, the containment reservoir will be covered with mesh to prevent Damselfly from laying additional eggs in it. After thirty (30) days, the vegetation and the cover will be removed to allow developing Damselfly to emerge, and remaining water will be returned to the pond.

(7) Trees over fifteen (15) ft will not be trimmed, pruned, or removed from June 1 – September 15 to avoid Hawaiian hoary bat pupping season.

11. Predator Control. Pūlama Lānaʻi will:

(1) Trap and remove predators including feral cats.

(2) Use live cat traps in strategic locations around the perimeter of the ungulate fence, and monitor them regularly in accordance with trapping best practices and standard operating procedures.

(3) Prohibit the feeding of cats at and/or near the Conservation Area.

(4) Use lethal rat traps, and will check, maintain and rebait rat traps per manufacturer recommendations.

(5) Install trail cameras around the site to monitor predator presence and occupancy of the site by waterbirds

(6) The extent and timing of predator control activities shall be within the sole discretion of Pūlama Lānaʻi.

12. Minimization and Avoidance Measures for Predator Control. Pūlama Lānaʻi will implement the following minimization and avoidance measures for its predator control activities:

(1) Cat trap lines may be situated on the inside or outside of the perimeter fence, located to minimize interactions with waterbirds, while maintaining trapping efficacy.

(2) Rat traps may be situated on the inside or outside of the perimeter fence. Traps which pose a potential source of Take (e.g. snap traps) will be enclosed in a box or other suitable structure that excludes water birds entirely, or in the case of A24 automatic rat traps, with an excluder that prevents them from accessing the inside of the trap.

(3) Rodenticide may be used inside or outside the perimeter fence. All rodenticide use will follow United States Environmental Protection Agency ("**EPA**") labeling for that rodenticide. Any rodenticide used will be deployed in containers that exclude waterbirds per EPA labeling instructions. Loose and/or hand broadcast rodenticides will not be used.

(4) Fine mesh screen barrier will be installed on the perimeter fence at ground level to prevent entry of bullfrogs and cane toads.

Appendix B

List of Tax Map Key Numbers
for Enrolled Property

TMK 2-4-9-001-021	TMK 2-4-9-002-072	TMK 2-4-9-002-101
TMK 2-4-9-001-023	TMK 2-4-9-002-073	TMK 2-4-9-002-102
TMK 2-4-9-001-024	TMK 2-4-9-002-074	TMK 2-4-9-002-103
TMK 2-4-9-001-025	TMK 2-4-9-002-075	TMK 2-4-9-002-104
TMK 2-4-9-001-027	TMK 2-4-9-002-076	TMK 2-4-9-002-105
TMK 2-4-9-001-033	TMK 2-4-9-002-077	TMK 2-4-9-002-106
TMK 2-4-9-001-034	TMK 2-4-9-002-078	TMK 2-4-9-002-107
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TMK 2-4-9-002-006	TMK 2-4-9-002-080	TMK 2-4-9-002-109
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Appendix C

Photos of Water Features in Other Areas

Lāna'i City Auxiliary Reclamation Facility Pond

Water feature at Sensei Lāna'i, a Four Seasons Resort

Water feature at Sensei Lāna'i, a Four Seasons Resort

Water feature at the Four Seasons Resort Lānaʻi

Water feature at the Four Seasons Resort Lāna'i

Water feature at the Four Seasons Resort Lāna'i

Open pond at the Mānele Wastewater Treatment Facility

R-1 Water Reclamation Reservoir on the edge of the Pālāwai Basin

Hōkūau Residential Development under construction

Drainage area at Sensei Farms hydroponic facility

APPENDIX D:
United States Fish and Wildlife Service
Recommended Standard Best Management Practices

The U.S. Fish and Wildlife Service (USFWS) recommends the following measures to be incorporated into project planning to avoid or minimize impacts to fish and wildlife resources. Best Management Practices (BMPs) include the incorporation of procedures or materials that may be used to reduce either direct or indirect negative impacts to aquatic habitats that result from project construction-related activities. These BMPs are recommended in addition to, and do not over-ride any terms, conditions, or other recommendations prepared by the USFWS, other federal, state or local agencies. If you have questions concerning these BMPs, please contact the USFWS Aquatic Ecosystems Conservation Program at 808-792-9400.

1. Authorized dredging and filling-related activities that may result in the temporary or permanent loss of aquatic habitats should be designed to avoid indirect, negative impacts to aquatic habitats beyond the planned project area.

2. Dredging/filling in the marine environment should be scheduled to avoid coral spawning and recruitment periods, and sea turtle nesting and hatching periods. Because these periods are variable throughout the Pacific islands, we recommend contacting the relevant local, state, or federal fish and wildlife resource agency for site specific guidance.

3. Turbidity and siltation from project-related work should be minimized and contained within the project area by silt containment devices and curtailing work during flooding or adverse tidal and weather conditions. BMPs should be maintained for the life of the construction period until turbidity and siltation within the project area is stabilized. All project construction-related debris and sediment containment devices should be removed and disposed of at an approved site.

4. All project construction-related materials and equipment (dredges, vessels, backhoes, silt curtains, etc.) to be placed in an aquatic environment should be inspected for pollutants including, but not limited to; marine fouling organisms, grease, oil, etc., and cleaned to remove pollutants prior to use. Project related activities should not result in any debris disposal, non-native species introductions, or attraction of non-native pests to the affected or adjacent aquatic or terrestrial habitats. Implementing both a litter-control plan and a Hazard Analysis and Critical Control Point plan (HACCP – see https://www.fws.gov/policy/A1750fw1.html) can help to prevent attraction and introduction of non-native species.

5. Project construction-related materials (fill, revetment rock, pipe, etc.) should not be stockpiled in, or in close proximity to aquatic habitats and should be protected from erosion (*e.g.*, with filter fabric, etc.), to prevent materials from being carried into waters by wind, rain, or high surf.

6. Fueling of project-related vehicles and equipment should take place away from the aquatic environment and a contingency plan to control petroleum products accidentally spilled during the project should be developed. The plan should be retained on site with the person responsible for compliance with the plan. Absorbent pads and containment booms should be stored on-site to facilitate the clean-up of accidental petroleum releases.

7. All deliberately exposed soil or under-layer materials used in the project near water should be protected from erosion and stabilized as soon as possible with geotextile, filter fabric or native or non-invasive vegetation matting, hydro-seeding, etc.

Appendix E
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