

**SAFE HARBOR AGREEMENT  
FOR NĒNĒ  
AT HALEAKALĀ RANCH, ISLAND OF MAUI**

This Safe Harbor Agreement (the “Agreement”) is made and entered into as of the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by and among **HALEAKALĀ RANCH COMPANY** (“Ranch”), the **U. S. FISH AND WILDLIFE SERVICE** (“Service”) and the **STATE OF HAWAI‘I, DEPARTMENT OF LAND AND NATURAL RESOURCES** (“DLNR”), hereinafter collectively called the "Parties".

## **1. INTRODUCTION**

This Safe Harbor Agreement (Agreement) is entered into on the date set forth above by and among Haleakalā Ranch Company (Ranch), the U. S. Department of Interior, Fish and Wildlife Service (Service), and the State of Hawai‘i, Department of Land and Natural Resources (DLNR), by its Board of Land and Natural Resources, hereinafter collectively called the "Parties". This Agreement follows the Service’s Safe Harbor Policy (64 FR 32717) and regulations (64 FR 32706), and implements the intent of the Parties to follow the procedural and substantive requirements of section 10(a)(1)(A) of the Endangered Species Act (ESA) of 1973, as amended, and Hawai‘i Revised Statutes (HRS) section 195D-4 and section 195D-22.

The purpose of this Agreement is to establish a population of the endangered nēnē (Hawaiian goose, *Branta sandvicensis*) on Haleakalā Ranch, Maui. Under this Agreement, the Ranch will work cooperatively with the State of Hawai‘i or its designee and grant access and permission to DLNR to: (1) construct or expand (pursuant to provisions and requirements of Section 6 below) a nēnē release pen; (2) make road improvements as needed to implement the agreement; (3) maintain the release pen and associated water source, and to monitor nēnē throughout the term of the agreement; (4) allow DLNR to release nēnē into the release pen; and (5) allow DLNR to conduct predator control in and around the release pen. This Agreement will increase the likelihood that nēnē will recover by providing a protected pen where nēnē chicks can mature and then be released into the suitable surrounding habitat. The biological goal of this Agreement is to establish a self-sustaining nēnē population, thereby expanding the species’ range onto the Ranch and adjacent lands containing suitable nēnē habitat. DLNR Division of Forestry and Wildlife (DOFAW) and Service biologists familiar with nēnē biology anticipate that the available habitat on the Ranch will provide the core areas for nēnē to become established with a long-term recovery goal of 200 nēnē on the Ranch.

As of 2016, conservation efforts have succeeded in establishing populations of nēnē on the islands of Hawai‘i, Kaua‘i, and Maui with an estimated statewide population of 3,047 individuals (Nēnē Recovery Action Group 2016). Currently, the primary threats to nēnē are predation by introduced predators, lack of suitable lowland habitats, and degraded habitat. The main objective of the USFWS’ *Draft Revised Recovery Plan for the Nēnē or Hawaiian Goose* (Service 1999, 2004) is to increase the population sizes and geographic distribution sufficient to consider reclassification or down-listing of this endangered species to threatened status. Towards this goal, the Plan makes it the Service’s objective to “*Restore and maintain multiple self-sustaining nēnē populations on Hawai‘i, Maui Nui (Maui, Mōloka‘i, Lāna‘i, Kaho‘olawe), and Kaua‘i.*” In pursuit of this objective,

DLNR and the Service have initiated nēnē reintroduction efforts on the island of Mōloka‘i in cooperation with Pu‘u O Hoku Ranch. On Maui, nēnē have been established in West Maui at Hana‘ula, at Pi‘iholo Ranch on the northern slopes of Haleakalā, and inside Haleakalā National Park.

The Service’s *Draft Revised Recovery Plan for the Nēnē or Hawaiian Goose* prioritizes the reintroduction or introduction of nēnē to new locations with suitable habitat. The plan identifies establishing predator-resistant breeding/release pens in suitable habitat where there is sufficient food and ongoing predator control efforts as a successful method for nēnē reintroduction (Service 1999, 2004). The pens are used for initial releases of goslings and are available in subsequent years as predator-protected areas for future generations to raise young. There is general agreement that it is best if these efforts are made on private land, as well as land controlled by conservation agencies. A major step in the restoration of nēnē on Maui, therefore, is to encourage the presence of nēnē on private lands and participation of private landowners in recovery efforts. This Agreement provides assurances to the Ranch that it may return its enrolled property to baseline conditions in accordance with this Agreement and the Federal and State permits discussed below.

When signed, this Agreement will serve as the basis for the Service to issue an Enhancement of Survival Permit (ESP) under ESA section 10(a)(1)(A) and DLNR to issue an Incidental Take License (ITL) under HRS §195D-4 for the incidental take of nēnē on the enrolled property. Incidental take is a result of any lawful activity if such take is incidental to, and not the purpose of that activity. The Federal and State permits will authorize the Ranch to take nēnē that have increased above the baseline established in this Agreement as a result of the Ranch’s Covered Activities (as defined in Section 5 below) as provided for in this Agreement and the permits. Permit issuance for take will not preclude the need for the Ranch to abide by all other applicable Federal, State, and local laws and regulations that may apply.

## **2. LIST OF COVERED SPECIES**

This Agreement covers the endangered nēnē, or Hawaiian goose. Background information on nēnē is provided in Appendix I – Nēnē Species Description.

## **3. DESCRIPTION OF ENROLLED LANDS**

The lands enrolled under this Agreement (hereafter referred to as the “enrolled property”) include two parcels located in the southeast portion of the Island of Maui, Wai‘opae, Hana (Appendix II). The first parcel consists of approximately 1,056 acres and is designated as Maui Tax Map Key No. 2-1-9-001:001 and the second is approximately 2,000 acres, designated as Maui Tax Map Key No. 2-1-8-001:004. There are approximately 1,600 acres of non-native grassland habitat suitable for nēnē within the enrolled property and the Parties expect that nēnē, in the future, may occupy all or a portion of that habitat. The property includes rolling grasslands, forest and gulches, and the land elevation ranges from sea level to approximately 3,000 feet.

The current site for the nēnē release pen is located southeast of Manawainui gulch at 2,625 feet in elevation in the Wai‘opae area. Dominant vegetation at the site includes kikuyu grass (*Pennisetum clandestinum*), lantana (*Lantana camara*), a small number of strawberry guava trees

(*Psidium cattleianum*), and a few ‘a‘ali‘i (*Dodonaea viscosa*). The enrolled property is in the State Hana District. Present operations include livestock operations, silvicultural research, recreational camping, and recreational hunting.

#### 4. BASELINE DETERMINATION

The Parties agree that the baseline condition applicable to this Agreement is the number of nēnē found on the enrolled property prior to translocation of nēnē to the property in 2011. Nēnē probably were extirpated on Maui by the end of the nineteenth century and today are found primarily within the boundaries of Haleakalā National Park, where reintroduction efforts began in 1962 (Service 1999, 2004). In addition, DLNR is establishing populations through reintroduction programs at Hana‘ula and Pi‘iholo Ranch (DOFAW 2000 & 2004).

Vehicular and pedestrian surveys of the area were performed on the enrolled property on March 18 and April 29, 2008. Vehicular access followed roughly along the inside of the western boundary of the property, with lateral pedestrian transects and visual surveys conducted concurrently. Approximately 30 percent of the property was visually scanned on those dates. During that survey period, Ranch representative J. Scott Meidell and the wildlife biologist, John Medeiros, also searched for and located a suitable pen site for nēnē, in the event a release pen could be built in the future. Medeiros also interviewed the landowner, managers, and Ranch personnel on this and other occasions.

There were no nēnē observed nesting in or adjacent to the Ranch during the two surveys conducted specifically for this baseline, nor was there evidence or observation of nēnē breeding or nesting in this area per prior aerial surveys of surrounding properties, or per personal observation of Medeiros and Ranch representatives in all previous years (Medeiros 2008a). According to the Service’s Safe Harbor Policy, baseline is generally determined by the condition of the enrolled property at the time a SHA is executed. Nevertheless, it is appropriate to deviate from that general policy under these particular circumstances. We are using the condition of the property at the time of translocation because the Ranch voluntarily agreed to construction of the pen in 2008 and translocation of nēnē to its property in 2011 and had timely applied for a permit with the good faith expectation that it would be processed expeditiously. Therefore, the baseline for this Agreement is zero (0).

#### 5. COVERED ACTIVITIES

- A. Covered Activities During the Term of this Agreement. The ‘covered activities’ for which incidental take will be authorized on the Enrolled Property in the initial 10 years of this Agreement are: 1) livestock operations; 2) silviculture; 3) recreational hunting; 4) cultivation of agricultural crops; and 5) implementing conservation measures.
1. Livestock operations. The Ranch maintains open grasslands with their current livestock operations. Operations and activities related to livestock by the ranch may include: 1) grazing on forage and/or providing feeding supplements to livestock herd; 2) construction, placement, maintenance of fences and corrals; watering sources, wells, troughs, and pipelines; 3) gathering, moving, trailing,

temporary penning, and rounding-up livestock with the use of motor vehicles, horses and livestock dogs; 4) calving and branding operations; 4) disposal of dead animals; 5) harvest of feral animals consistent with State regulations for commercial purposes; and 6) general stewardship and animal husbandry practices.

2. Silviculture. The Ranch and/or its agents are conducting silvicultural operations on the property. The silviculture operations include: 1) tree planting; 2) fencing to protect establishing plants; 3) monitoring and research; 4) tree thinning; and 5) selective application of pesticides.
3. Recreational hunting. The Ranch allows a limited and managed hunting opportunity of Ranch employees and shareholders. These activities include: 1) access and road use; 2) goat, deer, pig, and gamebird hunting with dogs; and 3) limited camping.
4. Cultivation of agricultural crops. The Ranch may undertake other diversified agricultural activities. Activities include: 1) cultivation of existing fields; 2) harvesting crops; 3) mechanical treatment of fields and pastures; 4) application of pesticides; 5) maintenance of nursery and upkeep; and 6) irrigation.
5. Implementing conservation measures. The Ranch supports a number of conservation activities, both associated with the protection of nēnē and implementation of this agreement, and other conservation work, such as supporting the management of Kahikinui and Kipahulu Forest Reserves, Nakula Natural Area Reserve, and other forested lands managed by DHHL. Conservation measures under this Agreement include: 1) out-planting of native plants; 2) pen maintenance and predator control; 3) maintenance of roads and firebreaks; 4) weed suppression and control; 5) helicopter operations; and 6) other access related to conservation activities.

If other or new activities are planned on the Ranch that the Ranch reasonably expects will result in the incidental take of nēnē during the initial 10 years of this Agreement, the Ranch will seek an amendment to the Agreement and ITL and ESP permits, which the Service and DLNR will use best efforts to process in a timely manner.

- B. Covered Activities Allowed After the Ten-Year Term of this Agreement: This includes all lawful activities carried out by the Ranch that may result in incidental take of nēnē provided they are in accordance with the ITL and ESP permit requirements and restrictions; provided, however, that activities involving the requirement for a Special or Conditional Use Permit, changes to County zoning or changes to the State Land Use District are not covered by the ITL and ESP and may require a Habitat Conservation Plan (HCP) for coverage of that incidental take if there is a demonstrable potential to cause take.

## 6. MANAGEMENT ACTIVITIES

Under this Agreement, the Ranch will grant DLNR access to the site to maintain the nēnē release pen and water source and to monitor nēnē on the Ranch. DLNR may expand the facility following approval by the Ranch subject to its review of a written request and proposed facility expansion plans provided by DLNR. In addition, the Ranch will cooperate with efforts by DLNR and others to control predators around breeding and release sites. To the extent that it remains economically viable, the Ranch expects to help maintain nēnē habitat in the area by continuing livestock operations in a manner sensitive to the presence of nēnē. Livestock operations on the property are not considered an essential factor in achieving the expected net benefit. The Ranch may also assist DLNR, to the extent resources are available, in carrying out nēnē management activities on the enrolled property. A reintroduction plan detailing release and monitoring strategies for nēnē at the Ranch is attached as Appendix III.

The Ranch agrees to carry out the following management activities during the term of the Agreement:

1. Grant DLNR site access and permission to maintain the release pen and water source at the designated location, with minor changes as needed for adaptive management, and further site expansion or infrastructure improvements for nēnē upon mutual agreement of the Ranch and DLNR;
2. Grant site access and permission for road improvement as needed to implement the Agreement;
3. Grant DLNR site access and permission to monitor nēnē on the Ranch throughout the term of the Agreement;
4. Allow DLNR to release nēnē into the release pen during the term of this Agreement;
5. Allow DLNR to conduct predator control in and around the release pen and in other areas that the Ranch agrees to in writing (see Predator Control Methods section in Appendix III - Plan for the Reintroduction of Nēnē to Haleakalā Ranch);
6. Continue implementing its feral dog control to the extent that resources are available;
7. To the extent reasonably possible, avoid disturbance to nēnē nests or nesting areas until after the birds have hatched their eggs and adults have left the nest with their young;
8. In order to minimize disturbance to nēnē, (a) prohibit game bird hunting within 1,000 feet of the pen or any known nests or families with goslings, following a fall survey by DLNR to identify general nesting areas; (b) provide hunters with a printed copy of the identified general nest locations, and instructions on how to identify and avoid disturbing nēnē; (c) ensure bird hunting dogs have training collars, or similar

provision to provide reasonable control over dogs to avoid their disturbing nesting nēnē; and (c) allow DLNR access to provide compliance monitoring during the bird hunting season, if hunting is to occur during Hawai'i gamebird season in order to ensure disturbance of nēnē is avoided by bird hunting activities;

9. Refrain from feeding nēnē; and
10. Instruct Ranch staff to abstain from feeding nēnē, habituating nēnē to their presence, approaching within 50 feet of the release pen, or approaching within 100 feet of families with goslings.

## 7. RESPONSIBILITIES OF THE PARTIES

A. In addition to carrying out the management activities set forth in Section 6, the Ranch shall:

1. Report to DLNR and the Service within 48 hours or as soon as possible of their discovery any nēnē mortalities, and as soon as possible any nēnē injuries or disease observed on the Ranch premises throughout the term of the ITL and the ESP. A plan to address injured nēnē and nēnē carcasses is attached as Appendix IV - Guidelines for Handling Injured Nēnē and Nēnē Carcasses;
2. Cooperate with DLNR as the agency carries out an annual count of nēnē in the area and other management activities covered by this agreement;
3. Notify DLNR at least 60 days in advance of any planned land use practice (e.g., controlled burn, fencing, construction, tilling, hay operation, invasive plant control, etc.), which the Ranch, in its sole and reasonable judgment, anticipates will result in the incidental take of nēnē on the enrolled lands throughout the term of the ITL and ESP. The Ranch will also provide DLNR, possibly with the assistance of the Service, the opportunity to capture and relocate any potentially affected nēnē;
4. Confer with DLNR if there are any planned new uses of the site that fall outside the current, normal operations of the Ranch and seek amendment of the ITL and ESP permits as necessary;
5. Notify DLNR at least 10 days prior to any planned activity occurring that the Ranch reasonably anticipates will adversely affect any adults, nests, or goslings known by the Ranch throughout the term of the ITL and ESP, in order to allow DLNR personnel, possibly with the assistance of the Service, an opportunity to collect eggs and goslings in the area;
6. Allow access to the enrolled property upon reasonable notice by DLNR and the Service for the purposes related to this Agreement, including any activities for which

the party is responsible, including, but not limited to, monitoring, capture and relocation of nēnē, and predator control;

7. Work with DLNR and the Service in developing and implementing the agencies' adaptive management strategies as appropriate;
8. Notify potential buyers of the enrolled property of the Agreement and notify DLNR and the Service of any transfer of ownership at least 120 days prior to transfer, to provide time for DLNR and the Service to contact the new owner and explain the habitat management and baseline responsibilities applicable to the enrolled property, and seek the interest of the new owner in signing the existing Agreement or developing a new Agreement to benefit listed species on the enrolled property;
9. Seek technical assistance from DLNR and the Service if considering habitat improvements for nēnē, such as out-planting native plant species; and
10. Should the Ranch need to return to baseline conditions after 5 years as provided in Section 12.D or after the expiration of the term of this Agreement as provided in Section 9, it shall provide one-year notice to DLNR and the Service prior to returning to baseline conditions to allow the Parties to develop a suitable alternate site for a pen.
11. The Ranch shall be solely responsible for the costs associated with carrying out the management activities in Section 6 and Section 7A.

B. DLNR agrees to:

1. Upon execution of the Agreement and satisfaction of all other applicable legal requirements, issue an ITL to the Ranch in accordance with HRS §195D-4 authorizing incidental take of the covered species as a result of lawful activities within the enrolled property. The term of the license will be 50 years except as otherwise provided by this Agreement;
2. Provide for the construction and maintenance of a nēnē release pen and water source, and related structures and materials, including but not limited to fencing and storage shed within the limits of funding resources;
3. Provide food and ensure there is an adequate supply of water for all nēnē within the release pen;
4. Provide physical examinations and necessary medical care for nēnē (see Appendix III - Plan for the Reintroduction of Nēnē to Haleakalā Ranch and Appendix IV - Guidelines for Handling Injured Nēnē and Nēnē Carcasses);
5. Release cohorts of banded nēnē in numbers necessary to attempt to establish a viable population in the area (see Appendix III - Plan for the Reintroduction of Nēnē to Haleakalā Ranch);

6. Prior to release, band all nēnē released with aluminum Service bands and uniquely coded color plastic bands;
7. Conduct predator control activities within the limits of staff and funding resources;
8. Provide technical assistance, including recommendations regarding native plant species for out-planting, nēnē habitat improvements, etc., to the Ranch when requested throughout the term of the ITL and ESP, within limits of staff and funding resources;
9. Conduct a fall survey to identify nest locations, provide the Ranch with GPS locations of identified nests, and provide compliance monitoring during the bird hunting season and if hunting is to occur during weekends and holidays, provided personnel and funding are available for such monitoring, in order to ensure disturbance of nēnē is avoided by bird hunting activities;
10. Provide the Ranch with information for hunters on nēnē identification, behavior, and avoidance measures, along with nēnē nesting areas and areas that pairs with goslings are utilizing so they can be avoided;
11. Respond to requests for assistance from immediate neighbors with reports of nuisance nēnē, or cases requiring nēnē rescue within limits of staffing;
12. Conduct an annual survey of Ranch premises, possibly with the assistance of the Service (see Appendix III - Plan for the Reintroduction of Nēnē to Haleakalā Ranch);
13. In cooperation with the Ranch, survey and identify nest locations in the fall of each year, and identify nest locations outside of the pen for the Ranch to avoid impact on these nests during bird hunting season, as long as bird hunting is occurring on enrolled lands, within the scope and terms of this Agreement;
14. Conduct monitoring and management activities in a manner not to interfere with the everyday operation of the Ranch;
15. Work cooperatively with the Ranch in identifying road improvement priorities, as needed to implement the plan, and in the execution of such road improvements;
16. Work with the Ranch and the Service in developing and implementing adaptive management strategies as appropriate;
17. Prepare annual reports to cover the period from July 1st to June 30th every succeeding year and submit the report to the Parties by September 1st of each year the Agreement is in effect. The report will describe reintroduction and predator control efforts, any occurrences of take, the number and species of any out-plantings completed, and monitoring efforts. The report will also include a summary table including number of birds released, number of birds injured, number of birds found

dead, number of nests, number of fledglings, number of traps, and number of predators removed. The report will also summarize compliance or non-compliance with the terms of this Agreement, problems or challenges, successes, and should also include any recommended adaptive management strategies;

18. Provide a report on the status of the Ranch nēnē population to the Ranch and the Service every 5 years after the Agreement terminates and throughout the term of the ITL and ESP;
19. The Habitat Conservation Plan division of DLNR will Review annual reports for compliance with the terms of this Agreement, including the results of biological monitoring data, adaptive management for subsequent years as appropriate, and track the increase of nēnē above baseline conditions and any authorized take of nēnē; and
20. Should the Ranch provide notice that they must return to baseline at any time after 5 years as provided in Section 12.D or after the expiration of the term of this Agreement as provided in Section 9, the Parties will be notified in order to find a suitable site with comparable predator control prior to the Ranch's return to baseline.

C. The Service agrees to:

1. Upon execution of the Agreement and satisfaction of all other applicable legal requirements, issue an ESP to the Ranch in accordance with ESA section 10(a)(1)(A), authorizing incidental take of the covered species as a result of lawful activities within the enrolled property. The term of the ESP will be 50 years except as otherwise provided by this Agreement;
2. Provide the Ranch and DLNR technical assistance, including recommendations regarding native plant species for out-planting, nēnē habitat improvements, etc., to the extent practicable, when requested throughout the term of the permit, and provide information on federal funding;
3. Assist the Ranch and DLNR with monitoring and management activities as feasible;
4. Work with the Ranch and DLNR in developing and implementing adaptive management strategies as appropriate; and
5. Review annual reports for compliance with the terms of this Agreement including the results of biological monitoring data, adaptive management for subsequent years as appropriate, and track the increase of nēnē above baseline conditions and any authorized incidental take of nēnē.

## 8. NET CONSERVATION BENEFIT

Based on the results from similar releases on Kauaʻi, Mōlokaʻi, and Maui, the initial 10-year period of this Agreement is considered sufficient to establish a new population of 200 nēnē on Haleakalā Ranch. For example, under the Puʻu o Hoku Ranch Safe Harbor Agreement (SHA) on Mōlokaʻi, the release of 74 birds between 2002 and 2004 resulted in a population estimated at 152 nēnē in 2008 (Medeiros 2008b). After an initial release of 32 birds in 1995 in the Kalalau Valley on Kauaʻi, that population grew to a population of 70 as of 2002, and following an initial release of 22 nēnē in Hanaʻula in 1995 and supplemented with further releases, the population has also grown to just over 70 birds. It is therefore expected that the population on Haleakalā Ranch is reasonably expected to reach a population of 200 birds over the 10-year Agreement period, from a released population of approximately 75 birds. While incidental take by the Ranch is unlikely to occur, as none has occurred under similar SHAs at Puʻu o Hoku Ranch or Piʻiholo Ranch, should there be incidental take by the Ranch during the term of the Agreement, it would not erode the projected net conservation benefit of a population of 200 birds by the end of the term of the Agreement.

Should the Ranch need to terminate the agreement after a five-year period pursuant to paragraph 12.D, it is still expected that within that time there would be an increase in the number of nēnē successfully reared at the site. The initial release of 75 nēnē is reasonably expected to result in an increase of 37 nēnē within five years (based on previous releases average of 9.2 birds per year). In this scenario, the net benefit would be four to five years of reproductive increase in the number of birds. Should the Ranch decide to return to baseline prior to the expiration date of this agreement, the Parties will be notified one year in advance to discuss other management strategies such as moving the pen to an alternate site, with comparable predator control. This would displace the nēnē, but would be unlikely to negatively affect the overall increase in population.

It is expected that some percentage of the nēnē released under the Agreement, and their progeny, will survive upon expiration or termination of the Agreement and that a percentage of nēnē will remain on the property for the permit term and beyond. Adult birds will likely seek out suitable habitat on their own outside the release area, while young birds would be available for translocation to other locations on Maui, if needed. The Parties reasonably expect this Agreement will result in an increase in the number of nēnē on Maui and an increase in the total area of suitable habitat on private lands utilized by nēnē. Without this cooperative government/private landowner effort, these lands would not otherwise be utilized by nēnē in the foreseeable future. Therefore, this Agreement will provide a net benefit to the species.

If this Agreement is not extended, then having the ITL and ESP in effect beyond the terms of the Agreement will allow the Ranch to defer returning the property/species to baseline conditions, if they so choose. Nēnē would therefore, continue to benefit from any ongoing or residual conservation advantages for an additional period of time. Furthermore, it offers flexibility to the Ranch if they wish to continue managing nēnē on their property. As stated under Responsibilities in Section 6 and 7A, the Ranch will continue to notify DLNR in advance of conducting any activities that it anticipates will adversely affect any nēnē and also report any dead, injured or diseased birds observed by the Ranch during the term of the license and the ITL and ESP permits, as well as provide a report on the status of the population every five years after the Agreement expires for the

term of the license and permits. DLNR and the Service will continue to provide technical and other management assistance as feasible, within limits of funding, throughout the term of the license and permits.

## 9. AGREEMENT DURATION

This Agreement will become effective upon issuance of the ESP, and will be in effect for 10 years following its approval and signing by the Parties. The ITL and ESP will both remain in effect for 50 years in accordance with their terms and conditions. 2. The rights and obligations under this Agreement are transferable to subsequent property owners in accordance with Code of Federal Regulations (CFR) 50 CFR 13.25 and HRS §195D-22(d). The Agreement may be extended beyond its specified 10-year duration prior to expiration if all Parties are in agreement, the Ranch has complied with the original terms described herein, and if requested in writing by the Ranch no later than 60 days prior to expiration of this Agreement.

## 10. INCIDENTAL TAKE OF COVERED SPECIES

A. **Incidental Take During the Term of this Agreement.** The ITL and ESP would authorize the incidental take of nēnē on the enrolled lands as a result of lawful Covered Activities as defined in Section 5 of this Agreement at the Ranch for the ten years after this Agreement is executed. Such unintentional loss is not expected to erode the net conservation benefit to the species—the projected establishment of a population of 200 nēnē on the Ranch. In fact, this authorization of incidental take consistent with current management of the Ranch is intended to facilitate the maintenance of nēnē habitat in the area by continuing livestock ranching operations in a manner sensitive to the presence of nēnē.

To minimize the likelihood of incidental take and enhance the likelihood that the reintroduction of nēnē to the enrolled lands will result in attaining the stated goal of a population of 200 nēnē, the ITL and ESP issued by DLNR and the Service will include the following conditions:

1. Report to DLNR and the Service of any known incidental taking, including injury or killing of a nēnē, and any incidental "death" of a fertile egg within 48 hours or as soon as possible. Such reports of incidental injury or death will be thoroughly reviewed by DLNR and the Service. Agencies shall identify procedures the Ranch can implement to avoid future incidental injuries or deaths. A plan to deal with injured nēnē and nēnē carcasses is attached as Appendix IV (Appendix IV. Guidelines for Handling Injured Nēnē and Nēnē Carcasses).
2. In the event that one-third or more of the 75 nēnē introduced to the enrolled lands in the reintroduction effort are incidentally injured or killed within the first five years of the Agreement, or one-third or more of the progeny of the introduced birds (including fertile eggs) are incidentally injured or killed at any time within the term of the Agreement, the Ranch will:

- a. Confer with DLNR and the Service regarding the activities or circumstances resulting in injury or death.
  - b. Allow the Parties to remove or minimize the threats to the nēnē on the enrolled lands that resulted in the incidental take episodes. If mutually agreeable procedures cannot be developed, DLNR may remove nēnē from the areas involved.
  - c. If Ranch activities are the cause of disturbance, confer with the Parties to identify and implement potential mutually-agreeable mitigating measures until nēnē can be moved to an alternate site.
  - d. As a last resort, allow DLNR to remove all live nēnē from the Ranch Premises. In such case, the federal ESP and ITL will terminate.
3. When situations arise that pose a threat of adverse impacts to nēnē and the Ranch, DLNR, and Service have actual knowledge of such situations, then the Parties shall confer within 10 working days for the purpose of developing a plan of action to avoid such threats.
  4. Due cause for purposes of suspension or revocation of this Agreement, the ITL, or the ESP shall include but not be limited to, failure to comply with minimization measures, failure to allow DLNR access for measures required under this Agreement, and shall include any cause enacted or adopted by statute or rule.

**B. Incidental Take After the Term of this Agreement.** Except as otherwise provided in paragraph 5.B of this Agreement, after the first ten years, the Ranch would be authorized to take nēnē as a result of any lawful activity if such take is incidental to, and not the purpose of, that activity. The Ranch will be authorized incidental take of nēnē down to baseline. This Agreement may also be extended from its original ten-year duration upon agreement of the Parties and if the Ranch has complied with the original terms described herein. In the case of an extension of this Agreement, the Ranch would continue to be authorized to incidentally take nēnē as a result of any lawful activity down to baseline (except as otherwise provided in paragraph 5.B. of this Agreement) pursuant to the terms of the ITL/ESP. The Ranch will provide notification to the Parties if they plan to return to baseline conditions to provide time to discuss further management strategies for nēnē in accordance with subparagraph 7.A.10 of this Agreement.

## **11. ASSURANCES TO THE RANCH REGARDING TAKE OF COVERED SPECIES**

Except as otherwise provided in paragraph 5.B, after the first ten years of this Agreement (at which time the net conservation benefit is expected to be achieved), and consistent with the applicable regulations currently codified at 50 C.F.R. § 17.22(c), the Ranch would be authorized to incidentally take nēnē in the course of carrying out any lawful activity on the enrolled property (including current or new land use practices that incidentally result in the loss of nēnē habitat), provided the Ranch complies with the terms of the ITL and ESP permits in place.

In addition, the Ranch shall not be held responsible for any death or injury of nēnē resulting from a *force majeure* event. The term *force majeure* means events that are beyond the reasonable control of, and did not occur through the fault of negligence of, the Ranch, including but not limited to: "acts of God" or sudden actions of the elements, including fire, excessive rainfall, and drought. Should a *force majeure* event occur that results in injury or death of nēnē on the enrolled lands and the principals of the Ranch have actual knowledge of the event, the Ranch shall report such an event to the Service and DLNR within 48 hours or as soon as possible of its discovery of the occurrence.

In the event that the Ranch decides to transfer ownership of the enrolled property to another party (ies), the Ranch shall notify the Service and DLNR at least 120 days prior to the intended ownership transfer to allow the agencies the opportunity to contact the intended new property owner(s). Actions taken by the new property owner(s) that result in incidental take of species covered by the Agreement would be authorized, so long as the new property owner agrees in writing to become a party to the Agreement and ESP and ITL in accordance with applicable regulations (federal regulations currently codified at 50 CFR 13.25(c)), complies with the management actions identified in the Agreement and adheres to the license and permit agreement for returning the site to baseline conditions.

## 12. MODIFICATIONS

After execution of this Agreement, DLNR and the Service may not impose any new requirements or conditions on, or modify any existing requirements or conditions applicable to, a landowner or successor in interest to the landowner except as stipulated in 50 CFR 17.22(c)(5) and 17.32(c)(5), and HRS §195D-22(c) and §195D-23(a).

A. Modification of the Agreement. Any Party may propose modifications or amendments to this Agreement by providing written notice 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 make their best efforts to respond to proposed modifications within 60 calendar days of receiving the notice. Proposed modifications will become effective upon the other Parties' written concurrence, unless they require a permit amendment.

B. Amendment of the License and Permit. The ITL and ESP may be amended to accommodate changed circumstances or for any other reason in accordance with all applicable legal requirements, including but not limited to the ESA, the National Environmental Policy Act, the Service's permit regulations at 50 CFR Part 13 and 50 CFR Part 17, and the State of Hawai'i's regulations at HRS §195D-23. Any Party may propose amendments by providing written notice to the other Parties. Such notice shall include a statement of the proposed amendment, the reason for it, and its expected results. The Parties will make their best efforts to respond to proposed amendments within 90 calendar days of receiving the notice. Proposed amendments will become effective upon fulfillment of the legal requirements stated above.

C. Suspension or Revocation of the Agreement, ITL, and ESP. Due cause for purposes of suspension or revocation of the ITL shall include but not be limited to failure to comply with

minimization measures, or failure to allow DLNR access for measures required under this Agreement, and shall include any cause enacted or adopted by statute or rule pursuant to HRS §195D-4(h). The Service may suspend or revoke the ESP for cause in accordance with the laws and regulations in force at the time of such suspension or revocation (currently codified at 50 CFR 13.27 and 13.28). The Service also, as a last resort, may revoke the ESP if continuation of permitted activities would likely result in jeopardy to covered species (50 CFR 13.28(a)). Prior to revocation for this reason, the Service will pursue all appropriate options to avoid permit revocation.

#### D. Termination of the Agreement.

1. As provided for in Part 12 of the Service's Safe Harbor Agreement Policy (64 FR 32717) and HRS §195D-22(b)(3) and HRS §195D-22(d), the Ranch may terminate implementation of the Agreement only after 5 years and before its expiration date because of unforeseeable causes beyond the reasonable control of and without the fault or negligence of the Ranch, including, but not limited to third party actions, sudden actions of the elements (e.g., hurricane, catastrophic bird population loss due to bird illness or disease), or actions of a non-participating Federal agency, state agencies or local jurisdictions. In such circumstances, the Ranch may return the enrolled property to baseline conditions even if the management activities identified in Section 6 have not been fully implemented, provided that the Ranch gives DLNR and the Service the notification required by Part 7.A.10 above prior to carrying out any activity likely to result in the taking of covered species. If the Ranch terminates this Agreement for any other reason, or prior to its fifth anniversary, the ITL and ESP referenced in Parts 7.B.1 and 7.C.1 above shall immediately cease to be in effect and extinguish the Ranch's authority to take the covered species. Thus, the Ranch must relinquish the ITL and ESP to DLNR and the Service for termination.
2. If DLNR or the Service terminates this Agreement, the ITL and ESP referenced in Parts 7.B.1 and 7.C.1 above shall immediately cease to be in effect and extinguish the Ranch's authority to take the covered species. Thus, the Ranch must relinquish the ITL and ESP to DLNR and the Service for termination. DLNR and the Service may suspend or terminate the Agreement if:
  - a. Any Parties to the Agreement or their successors, have breached their obligations under the Agreement or under any agreement implementing the plan and have failed to cure the breach in a timely manner, and the effect of the breach is to diminish the likelihood that the plan will achieve its goals within the time frames or in the manner set forth in the plan;
  - b. The plan no longer has the funding source specified in Section 12D or another sufficient funding source to ensure the measures or actions specified in Section 5 and Section 6 are undertaken; or
  - c. Continuation of the permitted activity would appreciably reduce the likelihood of survival or recovery of any threatened or endangered species in the wild.

### 13. OTHER MEASURES

A. Remedies. Each party shall have all remedies otherwise available to enforce the terms of the Agreement, license and permit, except that no party 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.

B. Dispute Resolution. The Parties agree to work together in good faith to resolve any disputes, using dispute resolution procedures agreed upon by all Parties.

C. Transfer. If the Ranch transfers interest in the enrolled property to a non-Federal entity, DLNR will regard the new owner as having the same rights and responsibilities with respect to the enrolled property as the Ranch. The Service will regard the new owner as having the same rights and responsibilities with respect to the enrolled property as the Ranch if the new property owner agrees and commits in writing to become a party to this Agreement and the permit referenced in Section 7.C.1 above in place of the Ranch, in accordance with the applicable regulations existing at that time (currently codified at 50 CFR 13.25).

D. Availability of Funding. DLNR's activities associated with the release and maintenance of nēnē on the enrolled property are partially funded by Kaheawa Wind Power (KWP I) in West Maui (Kaheawa Wind Power 2006) as required for nēnē mitigation in the approved HCP for the KWP I facility. DLNR is working cooperatively with KWP I to implement the "nēnē propagation and release or translocation program for nēnē" and began receiving funds from KWP I towards the above measures in 2007 (Kaheawa Wind Power 2006). DLNR will continue to assume responsibility for the continued maintenance and operation of the project, as they have for the other nēnē reintroduction facilities. Salaries and operating funds for Ranch personnel for maintenance and nēnē management activities as specified in this Agreement will be provided by the Ranch.

Implementation of this Agreement is subject to the requirements of the Federal 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 or the State of Hawai'i. 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.

E. 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, damages, injunctive or other relief 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.

F. Other Listed Species, Candidate Species, and Species of Concern. 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 covered and management activities specified in Sections 5 and 6 above. If that occurs and the Ranch so requests, the Parties may agree to amend the Agreement and associated license and permit to cover additional species and to establish appropriate baseline conditions for such other species. Such amendment would be processed in accordance with applicable laws and regulations.

G. Agreement Not a Federal Contract. Notwithstanding any language to the contrary in this Agreement, this Agreement is not intended to create, and shall not be construed to create an enforceable contract between the USFWS and Permittee under law with regard to the ESP or otherwise.

H. 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.

J. Scott Meidell  
Senior Vice President  
Land Management & Real Estate  
Haleakalā Ranch Company  
529 Kealaloa Avenue  
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300 Ala Moana Boulevard, Room 3-122  
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Hawai'i Department of Land and Natural Resources  
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IN WITNESS WHEREOF, the Parties hereto have executed this Safe Harbor Agreement as of the first date above written.

**HALEAKALĀ RANCH COMPANY**

By: \_\_\_\_\_  
Don Young, Its President

Date: \_\_\_\_\_

By: \_\_\_\_\_  
J. Scott Meidell, Its Senior Vice President

Date: \_\_\_\_\_

**STATE OF HAWAI‘I  
DEPARTMENT OF LAND  
AND NATURAL RESOURCES**

By: \_\_\_\_\_  
Suzanne D. Case, Chairperson  
Board of Land & Natural Resources

Date: \_\_\_\_\_

**U. S. DEPARTMENT OF INTERIOR, FISH  
AND WILDLIFE SERVICE**

By: \_\_\_\_\_  
Mary A. Abrams, Field Supervisor  
Honolulu, Hawai‘i

Date: \_\_\_\_\_

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Appendix I. Nēnē Species Description.

Appendix II. Map of Enrolled Lands

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Appendix IV. Guidelines for Handling Injured Nēnē and Nēnē Carcasses.

## Appendix I. Nēnē Species Description

The nēnē, or Hawaiian goose (*Branta sandvicensis*), is a medium-sized goose that is closely related to the Canada goose (*Branta canadensis*) (Quinn *et al.* 1991). It is the only remaining native resident goose in the Hawaiian Islands (Banko *et al.* 1999, Olson and James 1991). The plumage of both sexes is similar, though it is possible to distinguish between males and females, in part because females are smaller than males (Kear and Berger 1980). The nēnē is one of the most threatened and isolated and also one of the most sedentary and terrestrial of waterfowl species in the world (Banko *et al.* 1999, Weller 1980). This endemic goose is the state bird of Hawai‘i.

### Distribution

Fossil evidence indicates that before and during Polynesian colonization (around 1,600 years before present), nēnē occurred on all of the main Hawaiian Islands, with the exceptions of O‘ahu and possibly Ni‘ihau (Banko *et al.* 1999, Kirch 1985, Olson and James 1991). At the time of the arrival of Europeans in 1778, nēnē were known with certainty only from the island of Hawai‘i, though they may have still occurred on Maui and Kaua‘i (Baldwin 1945, Henshaw 1902, Wilson and Evans 1893). A decline of the species on the island of Hawai‘i was noted by observers in the early 1800s as birds were extirpated from lowland habitats (Baldwin 1945, Fisher *et al.* 1969) and by 1952, the wild population was estimated to be 30 birds (Smith 1952). Populations on the higher islands (>1,600 m in elevation) probably persisted longer than on lower islands because of the availability of larger tracts of habitat and remote rugged upland areas that made hunting and predation by introduced species less intense (Banko *et al.* 1999, Olson and James 1991).

Conservation measures emphasizing captive breeding were begun around 1949 and birds have been released into the wild since 1960 (Banko *et al.* 1999). Early release efforts were not very successful due to high mortality rates and low nesting success of the released nēnē (Banko 1992, Black *et al.* 1997). Since then, efforts to manage habitat at release and breeding sites, including predator control, supplemental food in drought years, native habitat restoration, etc., in addition to public education and continued releases, have aided the nēnē recovery program (Banko *et al.* 1999). In April 2011, Hawaii Governor Neil Abercrombie issued an emergency proclamation (referred to as the “Governor’s Proclamation”), that suspended State endangered species and environmental compliance laws for Hawaiian geese at the Kaua‘i Lagoons Resort. The purpose was to allow the Hawaii Department of Land and Natural Resources (DLNR) – Division of Forestry and Wildlife (DOFAW) to act quickly in translocating the Hawaiian goose population at Kaua‘i Lagoons to sites on other islands to reduce the potential for aircraft collisions at the adjacent Lihue Airport. Populations of nēnē currently exist on the islands of Hawai‘i, Kaua‘i, and Maui with an estimated statewide population of 3,047. Of these, around 1,258 are found on Kaua‘i, 544 on Maui, 1,140 on Hawai‘i, and 105 on Mōloka‘i (Nēnē Recovery Action Group 2016). All nēnē populations have been supplemented by captive-bred birds.

On Maui, nēnē probably were extirpated by the end of the nineteenth century and today are found primarily within the boundaries of Haleakalā National Park at elevations of 6,300 to 7,700 feet (Banko *et al.* 1999, Henshaw 1902, Service 1999, 2004). Captive-bred birds were first released on East Maui in 1962, and the Haleakalā population has apparently been stable at about 200 to 250 birds for the last 8-10 years; the total population on Maui in the late 1990s was about 270 to 320

birds (Service 1999, 2004). Wild nēnē populations outside of the park have been observed in the Kula, Olinda, Wailuku, Kihei, and Kahikinui areas on the outer slopes of Haleakalā Crater. The State of Hawai‘i DLNR – DOFAW is attempting to establish a second nēnē population on West Maui by releasing captive-bred birds at Hana‘ula. At Pi‘iholo Ranch in central Maui, 48 nēnē have been released (Medeiros 2008).

According to the Service’s draft nēnē recovery plan (Service 1999, 2004), actions needed for recovery include predator control, identification and protection of habitat within the species’ historic range, management of existing populations, and establishment and management of new populations for maximum productivity, survival, and behavioral and genetic diversity. Self-sustaining populations will be needed on Hawai‘i Island, Maui Nui (including the islands of Maui, Mōloka‘i, and Lāna‘i), and Kaua‘i. To downlist nēnē to threatened status, Service objectives include establishing a population of 600-800 on Maui Nui, with one large population of about 300 on East Maui and subsidiary populations on Mōloka‘i, Lāna‘i, and West Maui. The recovery plan recognizes some of these populations will need to be established and managed on private lands. The Nēnē Recovery Action Group is currently revising the target populations for the islands.

## **Threats**

The nēnē was listed as a federally endangered species in 1967 (32 FR 4001) and is considered one of the most endangered goose species in the world (Black 1998, Green 1994). Critical habitat was not designated for this species. A nēnē restoration program was initiated in 1949 and captive-bred birds have been released into the wild since 1960 (Kear and Berger 1980, Service 1999, 2004). The Zoological Society of San Diego currently manages the nēnē captive propagation program in Hawai‘i. All current populations of nēnē are partly maintained through releases of captive-bred birds (Black and Banko 1994).

Human activity has impacted nēnē since settlers first landed on the Hawaiian Islands. Hunting nēnē for food probably caused a substantial decline of birds in lowland habitats while extensive burning and agricultural activities changed habitat conditions for nēnē, introduced plants and non-native ungulates altered and often degraded the habitat, and introduced mammalian predators (mongooses, dogs, cats, rats, and pigs) preyed on nēnē, their eggs or goslings (Banko and Elder 1990, Henshaw 1902, Baldwin 1945, Wilson and Evans 1893). These activities also had indirect negative effects including driving nēnē to marginal upland areas and changing migration patterns, flocking behaviors, and utilization of food items. Currently, the primary threats to nēnē are introduced predators, lack of lowland habitats, degraded habitat which leads to starvation and dehydration, and the spread of toxoplasmosis (*Toxoplasma gondii*) by cats (Work *et al.* 2015, 2016).

## **Habitat Types**

Nēnē are reported to utilize a variety of habitats from sea level to 8,000 feet above mean sea level including coastal dunes and non-native grasslands (such as golf courses, pastures, and rural areas), sparsely vegetated low and high elevation lava flows, cinder deserts, native alpine grasslands and shrublands, open native and non-native alpine shrubland-woodland, as well as mid-elevation native and non-native shrublands and early successional cinderfall (Service 1999, 2004). However, their present distribution was highly influenced by the location of release sites for captive-bred nēnē

and nesting generally occurs in areas associated with release sites (Banko 1988, Banko *et al.* 1999, Service 1999, 2004). It is unlikely that nēnē used native grasslands, grassy shrublands and dryland forest prehistorically (Banko *et al.* 1999).

Little is known about the vegetation structure, dynamics, and composition of Hawaiian habitats, especially in the lowlands, prior to human contact. However, more recent archaeological work is improving our understanding of the environmental history of Hawai‘i, including species composition and this is likely to aid in habitat restoration efforts for all native species, including nēnē (Banko *et al.* 1999, Burney *et al.* 2001, Cuddihy and Stone 1990). Nēnē have shown flexibility in the utilization of alien plants and readily forage on introduced grasses and other plant species, however, low productivity is believed a problem in nēnē populations due to insufficient protein intake in their diet and there are also concerns about whether adequate nutrition is available for goslings (Baker and Baker 1995, Banko *et al.* 1999, Black *et al.* 1994). Recent studies of habitat use and on the nutritional value of various food items eaten by nēnē, including native and non-native plants, will aid in determining methods for converting predominantly non-native plant communities into habitats dominated by native plants that are capable of sustaining nēnē populations in appropriate areas agreed on by nēnē managers and stakeholders (Banko *et al.* 1999, Black *et al.* 1994, Hu 2000, Service 1999, 2004, Woog 2000).

### **Breeding Habitat**

Early accounts of nēnē biology suggest that they nested primarily in uplands (Dole 1869, 1879, Peale 1848). Nēnē nested primarily in leeward lowland habitats (under 700 meters) during the rainy season when winter rains caused new growth of food plants and it is thought that the warmer low elevation areas improved nesting success and gosling survival (Baldwin 1947, Banko 1988, Henshaw 1902, Munro 1944, Perkins 1903).

Nesting typically occurs between October and March although eggs have been laid from August to April (Service 1999, 2004). Nēnē nests are constructed on the ground and are typically a shallow scrape, lined with a variety of plant material and feather down, and are well hidden under vegetation. Mostly native species are available and used to nest under on Maui and Hawai‘i, but on Kaua‘i mostly non-native species are available and used (Banko *et al.* 1999). The presence of open or flowing water is not necessary for successful breeding, although nēnē will readily utilize water when available (Service 1999, 2004).

### **Diet**

Although nēnē don't migrate long distances as many other geese do, historically, they exhibited altitudinal migration in response to seasonal changes in food availability. As noted above, nēnē nested in lowland areas during the rainy season. In the summer, after the goslings had fledged and could fly, nēnē moved to upland areas around the time when some foods (berries and some grasses) were more abundant there than in the lowlands (Baldwin 1947, Banko *et al.* 1999, Henshaw 1902).

Nēnē are browsing grazers and forage on a variety of over 50 native and introduced plants. The majority of food items nēnē graze on include various fruits of several species of shrub, leaves and seeds of grasses and sedges, and leaves and flowers of various herbaceous composites (Baldwin

1947, Banko *et al.* 1999, Black *et al.* 1994, Service 1999, 2004). Nēnē are opportunistic in their choice of food plants and the composition of their diet depends largely on the composition of the vegetation in the habitat and since most habitats in Hawai‘i are highly altered, there is a high proportion of non-native foods to which nēnē have apparently adapted to foraging on (Banko *et al.* 1999, Black *et al.* 1994, Service 1999, 2004, Woog 2000). It seems apparent that this adaptability has allowed nēnē to survive in marginal habitats to which they were pushed as their traditional habitats were lost (Banko *et al.* 1999, Black *et al.* 1994). However, observers have expressed concern regarding whether the modified habitats are truly providing adequate nutrition for breeding females and for goslings and it is hoped that work on a nēnē food database and other research efforts will be useful in developing habitat restoration techniques and management efforts for nēnē recovery work (Baker and Baker 1995, Banko 1992, Banko *et al.* 1999, Black *et al.* 1994, Hu 2000, Service 1999, 2004, Woog 2000).

Some native foods that have been shown to have a high occurrence in nēnē droppings include ohelo (*Vaccinium reticulatum*) and pukiawe (*Styphelia tameiameia*) berries, and hair grass (*Deschampsia nubigena*) (Baldwin 1947, Black *et al.* 1994). Some non-native plants that are frequently used as forage by nēnē include Kikuyu grass (*Pennisetum clandestinum*), Yorkshire fog or mesquite grass (*Holcus lanatus*), rattail grass (*Sporobolus africanus*), and gosmore (*Hypochoeris radicata*) (Black *et al.* 1994).

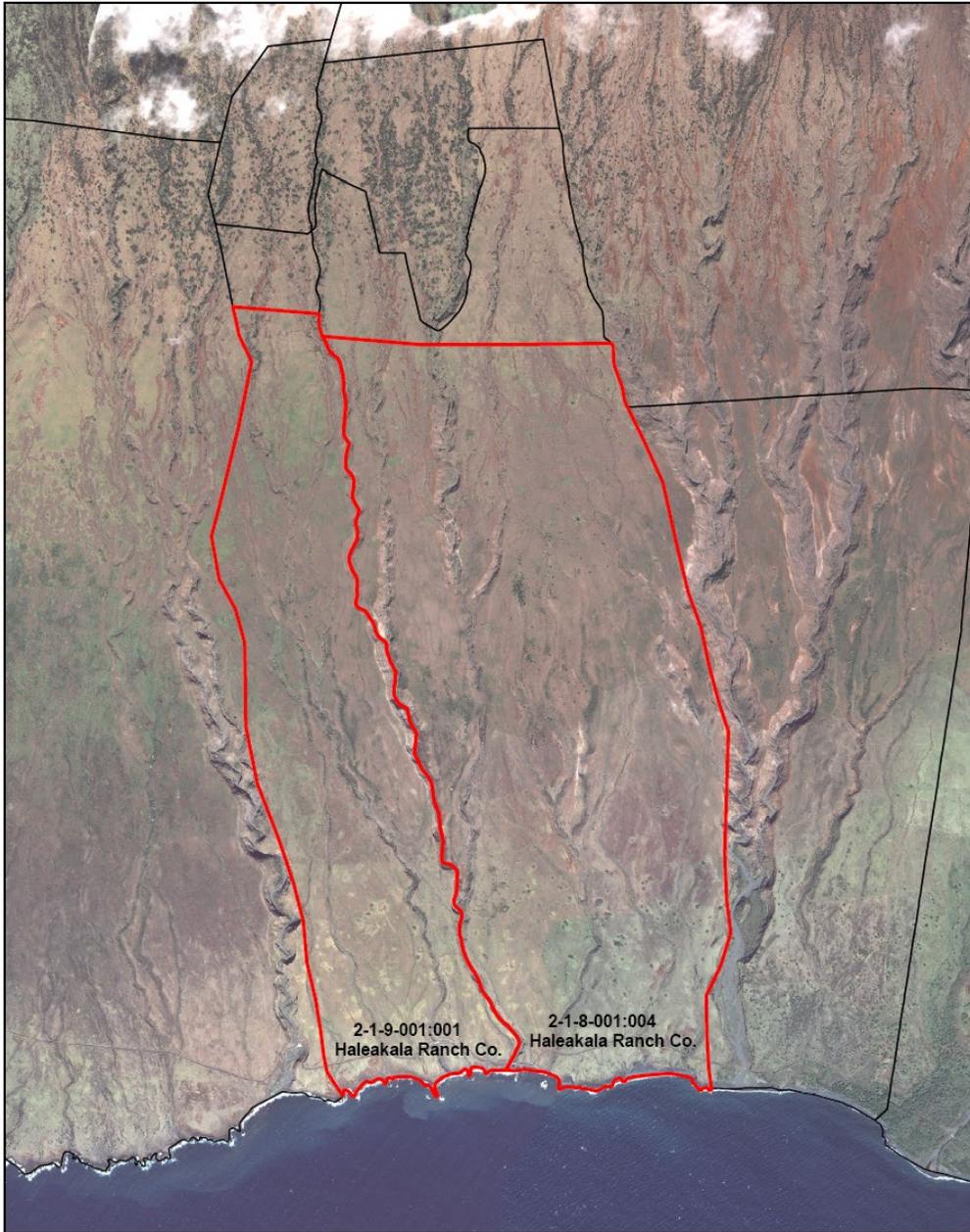
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## Appendix II. Map of Enrolled Lands



0 2,375 4,750 Feet

jsm 20080711  
1 inch equals 2,500 feet

HALEAKALA RANCH

## **Appendix III. DOFAW Plan for the Reintroduction of Nēnē to Haleakalā Ranch**

### **I. Introduction**

Nēnē, or Hawaiian goose, (*Branta sandvicensis*) currently inhabit upland scrub and grass pastures in Hawai‘i on the islands of Kaua‘i, Maui, and Hawai‘i. On March 11, 1967, the nēnē was federally listed as endangered due to its low numbers and lack of self-sustaining populations. Predation and commercial hunting were major contributors to the historic decline of nēnē.

Between 1960 and 1980, approximately 2,000 nēnē were released into upland habitats on Hawai‘i and Maui. These releases failed to produce self-sustaining populations. Since then, research has indicated that predation from mongooses, feral dogs, and rats are a primary reason for the lack of recovery of nēnē. On the mongoose-free island of Kaua‘i, the rapid expansion of nēnē into lowland pastures following a release in 1982 provided further evidence on the import of mongooses in limiting the recovery of nēnē.

Since the early 1990's, the approach to nēnē recovery in Hawai‘i has been to increase the range of nēnē by releasing goslings with "foster parents" in suitable nēnē habitat where predator control can be implemented. In keeping with this recovery strategy, nēnē have been released at Kīlauea Point National Wildlife Refuge and on the Nā Pali Coast on Kaua‘i, creating two additional population centers on that island. A new population has also been established on West Maui and at Hakalau National Wildlife Refuge on Mauna Kea. Since 2001, the State Division of Forestry and Wildlife (DOFAW) has been reintroducing nēnē to Mōloka‘i at Pu‘u o Hoku Ranch. This project intends to establish an additional population on Haleakalā Ranch. Observations from Kaua‘i indicate that actively managed livestock ranches provide suitable conditions for nēnē: well-managed pasture promotes the growth of young grass shoots—an important food resource for nēnē (Woog 2000); and feral dogs, a major predator on adult and juvenile nēnē, are actively controlled on livestock ranches. Twenty-four nēnē have been introduced to Pi‘iholo Ranch in central Maui.

### **II. Reintroduction Strategy for Haleakalā Ranch**

Releases will be conducted by DOFAW personnel in coordination with Ranch personnel and Ranch activities. When birds are in the release pens, DOFAW may monitor the pens and adjacent areas weekly, concurrent with feeding and predator control activities. Following fledging, survival of released birds will be monitored twice monthly for at least 3 months. During the breeding season (typically October to March or April), monthly surveys will be conducted to locate and monitor nesting sites. An annual survey of the Ranch premises will be conducted between May and August with the assistance of the Ranch and possibly with the assistance of the Service. Telemetry will be used to locate nēnē and track their movements. Radio-transmitters, satellite tags, or similar technology may be attached to one or two nēnē of each group released once known pairs are established. Transmitters will be attached using the standard "backpack" developed by DOFAW biologists for use on nēnē in Hawai‘i. In order to permanently identify nēnē, prior to their release, goslings will receive microchips inserted by the DOFAW endangered species avian veterinarian.

Release strategies may be modified with agreement of all parties, as part of the adaptive management strategy, and will be considered during annual review.

### **III. Procedure for Releases**

1. Foster parents and captive-reared goslings will be given a physical examination by DOFAW's avian veterinarian prior to release. Each released bird will be individually marked with an aluminum Service band, a uniquely coded color plastic band, and an imbedded microchip inserted by DOFAW's avian veterinarian. The following information will be recorded for each of the captive bred released birds:

Current Status - Vital Statistics (sex, age);

Origin of parental stock;

Source - Captive or wild, birth location, rearing history, sire ID, and dam ID;

Transaction History - Hatch date, Transfer date, Release date;

Special Data and Comments - Tag/Band no. (both State and Federal), Weight at release, and Microchip No.

2. Captive-reared goslings will be placed in release pens at least 2 to 3 weeks prior to fledging. This is needed to establish site fidelity. If the release is delayed and goslings are flighted, the goslings will still remain in the release pen for at least 2 to 3 weeks. This will be accomplished by either clipping their flight feathers or covering the release pen with netting.

3. Foster parents will be maintained in the release pen. These birds will have had some flight feathers clipped so they are rendered flightless until they molt the following March. At that time, nēnē may be allowed to fly free or kept flightless by clipping their flight feathers.

4. As long as nēnē are in the release pens, pens will be monitored at least once a week to ensure the integrity of the pen fence, ensure that food and an adequate supply of water are available, and monitor for disease or injury to the penned birds. Poultry feed will be provided on a continuous basis via an automatic feeder. Water will be provided from a water trough that is safe for goslings and a small portable pond. Efforts will be made to prevent nēnē from acclimating to human presence to the maximum extent practicable.

5. Eight to fifteen goslings, the optimum number for foster parents to handle, will be released at a time.

6. Ten to twenty goslings will be released each year for the first 3 years. Prior to the fourth year, the situation will be assessed to determine whether the schedule of aggressive releases should be continued at Haleakalā Ranch, and adaptive management measures determined by collaborative effort of DOFAW, the Service, and the Ranch. This decision will be based on the level of dispersion of released goslings, survival, and nesting success rates, as well as current management conditions.

7. Release and management strategies may be modified with agreement of all parties, as part of the adaptive management strategy, and will be considered during annual review.

#### **IV. Genetic Considerations**

Genetic diversity has been a major consideration in all of the releases conducted by DOFAW since the 1990s (Service 1999, 2004). Although the history of current populations of wild nēnē and captive flocks are fairly well known, very little actual research into the genetic diversity and relatedness of nēnē in Hawai‘i has been conducted. By the 1950s the nēnē in Hawai‘i had experienced an extreme genetic bottleneck, with only approximately 30 wild nēnē remaining by 1951 (Smith 1952). The initial birds maintained at Pōhakuloa, Hawai‘i and Slimbridge, England came from the remaining 11 members of a flock that Herbert Shipman had reared in 1918 from 2 pairs of nēnē. A few wild birds were added to the Pōhakuloa and Slimbridge flocks within the next 20 years.

The wild nēnē in Hawai‘i today consist of progeny of the wild birds remaining on Hawai‘i in the 1950's; birds released from Pōhakuloa and Slimbridge in the 1960's through 1980's and their progeny; and more recently, birds released from the Maui Bird Conservation Center (MBCC) facility and their progeny. Maintaining a captive flock is the best way to manage genetic diversity of birds raised for release.

The source of birds for release on Haleakalā Ranch is the MBCC facility, and/or released or wild nēnē moved other locations on the Island of Mōloka`i.

#### **V. Predator Control Methods**

Predator control methods will be developed in coordination with the Ranch throughout the term of the Agreement. In the course of its normal operations, the Ranch will conduct feral dog control in and around the release pen, and nēnē nesting areas outside of the pen, and DOFAW personnel will assist when available. Any domestic or licensed animals will be returned to the owner, if known, or turned over to the Animal Shelter for proper disposal. Wild and feral predators will be destroyed in a humane manner.

Trapping at release pens will be initiated after the perimeter of the release pen is constructed and secure. Initial trapping will be conducted in the pen to ensure that it is predator free. Prior to the first release of nēnē, intensive trapping will be conducted around the exterior of the pen to a distance of approximately 30 feet. Traps used will be of a design intended to primarily capture mongooses and rats, but are also capable of capturing cats.

During breeding season, traplines will extend around the perimeter of the release pen and at known nesting areas outside the pen. These traplines will run for at least 2 months, to include the period from egg-laying through fledging, and will be extended to cover any additional breeding activity. All trapping data will be reported on a trapping form which will be completed every week by Ranch personnel. These forms will be evaluated semiannually to determine effectiveness of the

trapline using the corrected trap success formula (Nelson and Clark, 1973):  $\text{corrected trap success} = \frac{\text{captures}}{\text{\#traps set} - \text{half \# traps sprung}} \times \text{ nights set} \times 100$ . Numbers of predators trapped will also be assessed over time. However, this may not be a reasonable estimate of effectiveness due to the influx of rats and mongooses from outside the trapping area. If other predators (e.g., feral dogs) are found to be preying on nēnē on the Ranch, additional control methods will be conducted as appropriate and agreed to by the Parties. Any use of licensed toxicants will be conducted according to label restrictions.

Predator management protocols and strategy may be modified with agreement of all parties, as part of the adaptive management strategy, and will be considered during annual review.

## **VI. Monitoring Protocols**

Survival of Released Birds - All released birds will be banded with an aluminum Service band and a color-coded plastic band prior to release, and will be carrying an inserted microchip to track movements and survival rates. These marking systems will allow us to identify live nēnē at a distance and nēnē carcasses. Of each group of nēnē released, one or two (preferably males) will be fitted with transmitters to easily track movements, if possible. The radio-transmitters will be attached once known pairs are established. Ranch personnel will monitor released nēnē twice per week during the 2-week period immediately following release. Thereafter, monitoring of the pen and adjacent areas will be conducted on a weekly basis by Ranch personnel. DOFAW personnel will monitor released nēnē twice per month during the 3-month period following each release. The Ranch will provide DOFAW a monthly list of nēnē sightings which will include the band numbers, if possible, and the number of unbanded individuals. Handling of injured and dead nēnē will be done in accordance with Appendix IV of the Haleakalā Ranch Safe Harbor Agreement, "Guidelines for Handling Injured Nēnē and Nēnē Carcasses." Monitoring protocols may be modified with agreement of all parties, as part of the adaptive management strategy, and will be considered during annual review.

Annual Survey - An annual survey will be conducted between July and August of each year by Haleakalā Ranch and DOFAW personnel, possibly with the assistance of the Service, on the 600 acres of maintained nēnē habitat on the Ranch and any other areas nēnē have been observed on the Ranch. Information will be analyzed to determine movements, nest success and distributions. Annual surveys will also be utilized to determine population estimates.

Condition of Habitat - Sample photo plots will be established in the vicinity of the release pen as a means of monitoring conditions of the habitat and out-plantings. The plots will be marked by a 5' iron pin with an arrow indicating the direction of the photo plot. Photos of the plots will be taken annually.

**References:**

- Nelson, L. Jr. and F. W. Clark. 1973. Correction for sprung traps in catch/effort calculations of trapping results. *Journal of Mammalogy* 54:295-298.
- Smith, J.D. 1952. The Hawaiian goose (nēnē) restoration program. *J. Wildlife Mgmt.* 16: 1-19.
- Service. 1999. Draft Revised Recovery Plan for Nēnē or Hawaiian Goose (*Branta sandvicensis*). U.S. Fish and Wildlife Service, Portland, OR. 60 pp.
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- Woog, F. 2000. Ecology and behavior of reintroduced Hawaiian geese. Ph.D. dissertation, Universität Hannover, Germany.

## Appendix IV. Guidelines for Handling Injured Nēnē and Nēnē Carcasses

The purpose of these guidelines is to provide Piiholo Ranch personnel with sufficient information to correctly determine the disposition of injured nēnē and carcasses that they encounter on lands owned by the Ranch. The Maui District Wildlife Manager, Hawaii Division of Forestry and Wildlife (DOFAW), should be contacted for assistance at 808-984-8100. If DOFAW personnel on Maui are unavailable, the State Wildlife Program Manager in Honolulu should be contacted at 808-587-4176. Ranch personnel also may contact the Service's Pacific Islands Fish and Wildlife Office, Conservation Planning and Permits Program, at 808-792-9400. All injured or dead birds found on the enrolled property must be noted in the Ranch's annual report.

### Criteria for Handling Injured or Ill Birds

If the bird can fly, do not remove it from the field. Notify DOFAW personnel as soon as possible. Continue to monitor the bird if possible. Record the following information, and photograph the bird (if possible):

- Date
- Location
- Band numbers (if banded)
- Condition of bird (e.g., type of injury). Be specific in describing injury (left vs. right, where exactly on bird is the injury). Also indicate if a predator is evident in the vicinity and all measures to eliminate the predator should be taken.
- Name, address, and telephone number of observer
- Additional comments

If an injured or ill bird cannot fly, do not remove it from the field. Notify DOFAW personnel as soon as possible. Mark the area and monitor the bird if possible until DOFAW personnel arrive. Injured nēnē may be captured only by personnel trained and authorized for the capture and collection of live birds.

### Criteria for Collecting Nēnē Carcasses

All nēnē carcasses will be collected for necropsy in order to determine cause of death, where possible, and to provide information about the species' general movements. If a dead bird is found and determined to be fresh (within 48 hours of death), put the carcass in a sealed plastic bag and place that sealed bag inside another plastic bag (*i.e.*, double bag), place in a freezer or on ice, and contact DOFAW personnel. If unable to contact DOFAW within 48 hours, keep the double-bagged specimen in a freezer or on ice until it can be collected for necropsy. If a carcass is obviously in a state of decay place the bird in a sealed plastic bag in freezer and notify DOFAW personnel as soon as possible. Birds will be collected by DOFAW personnel. Record the following information for all dead birds:

- Date
- Location (collection site)
- Band numbers (if banded)
- Condition of bird (e.g., type of injury)
- Whether the bird was found dead or died subsequently
- Name, address, and telephone number of observer
- Additional comments