



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Pacific Islands Fish and Wildlife Office  
300 Ala Moana Boulevard, Room 3-122  
Honolulu, Hawaii 96850

## **FINDING OF NO SIGNIFICANT IMPACT FOR THE PROPOSED LEHUA ISLAND ECOSYSTEM RESTORATION PROJECT BY THE U.S. FISH AND WILDLIFE SERVICE KAUAI COUNTY, HAWAII**

### **PROPOSED ACTION**

The U.S. Fish and Wildlife Service (Service), Pacific Islands Fish and Wildlife Office (PIFWO) proposes to implement the proposed action in the Final Environmental Assessment (FEA) for the Lehua Island Ecosystem Restoration Project, issued July 2017. The proposed action will be implemented by the Hawaii Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW), the co-lead on the Service's FEA, in partnership with others entities. This proposed action (Alternative 2) will restore the native ecosystem on Lehua Island that has been negatively affected by historical and existing invasive mammal and weed infestations. Restoration will be achieved through eradicating Pacific rats from Lehua Island by aerial broadcast of bait pellets containing the rodenticide diphacinone and subsequent re-introduction of native species. If diphacinone does not eliminate all rats, applying the rodenticide brodifacoum will be considered the following year (2018). In addition, the Service will issue a Migratory Bird Special Purpose permit (50 CFR 21.27) for take of migratory birds incidental to the eradication of rats from Lehua Island as required under the Migratory Bird Treaty Act.

The eradication of rats from Lehua Island will eliminate numerous significant negative pressures on the native flora and fauna. Prior to the introduction of rodents, Lehua Island's seabird colonies and native species existed in an environment relatively free of aggressive predation or herbivory. Removing introduced rodents will significantly increase the quality of seabird nesting habitat and allow seabird species that are currently not present to recolonize the island. Restoration will likely increase the colony sizes and diversity of seabirds that use Lehua Island as a breeding site, and allow for the re-establishment of some of the native plant and invertebrate communities. Rat eradication will facilitate the re-colonization and reintroduction of plant communities representative of those that existed before invasive rats altered the native plant community through aggressive herbivory.

This is a joint project with the Hawai'i Department of Land and Natural Resources' Division of Forestry and Wildlife (DOFAW), who was a co-lead in producing the EA for this project. The EA meets both Federal and State of Hawaii legal requirements for environmental project review.

Documents reviewed in the preparation of this Finding of No Significant Impact (FONSI) were the *Draft Environmental Assessment, Lehua Island Ecosystem Restoration Project*, issued May 2017, and the *Final Environmental Assessment, Lehua Island Ecosystem Restoration Project*, issued July 2017. These documents are incorporated by reference, as described in 40 CFR § 1508.13.

### **Description of the Proposed Action**

In July 2017, the U.S. Fish and Wildlife Service and the Hawai'i Department of Land and Natural Resources Division of Forestry and Wildlife, as joint lead agencies on the FEA, with the U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, National Wildlife Research Center (NWRC), and the U.S. Department of Homeland Security, U.S. Coast Guard (USCG), as the cooperating agency published the FEA for the Lehua Island Ecosystem Restoration Project finalized the EA and made it available to the public. As documented below, the Service selected the proposed action (Alternative 2), which includes the following:

1. Eradication of the non-native Pacific rat (*Rattus exulans*) on Lehua Island, as these species prevent or suppress ecological regeneration; and
2. Monitor project activities for impacts to non-target species and for effectiveness in rodent eradication.

Alternative 2 of the 2017 FEA included aerial broadcast of bait pellets containing rodenticide in the summer months. The rodenticide proposed for use was diphacinone (50 ppm), with potential to use brodifacoum (25 ppm) as a backup the following year, if the diphacinone application failed to eradicate the rat population. The proposed action is modeled on successful island rat eradication efforts worldwide.

For the highest probability of success, diphacinone bait must be applied across 100 percent of the land area of Lehua Island, into every potential rat territory on the island. Bait will be broadcast from a hopper suspended under a helicopter at a rate dictated by the product label. A second and third bait application will be made, with applications interspersed by 5-7 days. If the brodifacoum application was deemed necessary in the following year, bait will be broadcast aerielly as above at a rate dictated by the product label. A second application will be made approximately 5-7 days following the first.

The proposed action was informed by a thorough analysis of factors influencing a failed rat eradication attempt in 2009,. The following factors were identified and evaluated:

1. Rats were eradicated, but reinvaded from another source island: DNA analysis indicated that the pre- and post-eradication rat populations could have been one and the same, but rats from other potential source islands were not analyzed to confirm these findings.
2. Widespread availability of competing food sources: Lehua received heavy rains in December 2008, triggering vigorous new growth in vegetation immediately before the eradication. This flush of new growth, coupled with the increase in island-wide vegetative biomass as a result of the previous rabbit eradication, may have resulted in a

situation where rats had an abundance of alternative food sources and consumed insufficient quantities of rodenticide bait.

3. Bait product palatability and efficacy: A study conducted in 2011 found that a 0.005% Diphacinone formulation was not preferred over “laboratory chow” and only caused mortality in 40% (n = 5) of wild-caught Pacific rats involved in a 7-day, two-choice trial. However, these 2011 data contrast with those from other studies and projects. Pacific rats were eradicated from Mōkapu Island and 100% control of rats was achieved on a project on the island of Hawai‘i— both projects used Diphacinone-50 Conservation.
4. Rodenticide type and function: Diphacinone is a multi-feed rodenticide that requires rats to consume several doses over a course of multiple days in order to reach lethal levels in 100% of a rat population. During the 2009 Lehua eradication attempt, bait may not have been available for long enough in all potential rat territories for all rats to accumulate a lethal dose of the rodenticide. Additionally, feeding of rodenticide may have been interrupted with consumption of natural food.
5. Constraints on the bait application: The Hawai‘i Department of Agriculture (HDOA) stipulated that bait could not be broadcast within 30 m of the shoreline. Because some Pacific rats have very small home ranges (120 m<sup>2</sup>), it is possible that individual rats living within the shoreline buffer zone did not access lethal doses of bait.
6. Ineffective post-eradication monitoring: Robust monitoring protocols were detailed in the Final Supplemental Environmental Assessment, Lehua Island Ecosystem Restoration Project, issued October 2008. These included the use of telemetered rats, chew cards, and tracking tunnels to evaluate survivorship post-application of the rodenticide. However, these measures appear not to have been employed.
7. Ineffective response to detection of survivors: When rats were detected on Lehua in August 2009, a series of factors hindered mounting a response to conduct a follow-up eradication. The reasons for the lack of follow-up are not clear, but include permit expiration issues, inadequate coordination among implementing agencies, insufficient funding, and constraints on employing the backup option of applying brodifacoum.

Of the above factors, 1 and 4 were not found to contribute to the project’s failure. Whereas, it was deemed other factors warranted consideration or modification in the development of this proposed plan. Factor 2, the widespread availability of natural food during the winter months may have contributed to the failure of the 2009 operation. Because of this, the proposed operation will be conducted during the summer months when vegetation has declined (i.e., alternative food) due to lower rainfall. Factor 3, the palatability may have been a contributing factor in the 2009 failure, therefore the proposed operation will use a new diphacinone formulation, which has shown to have a higher acceptance by rats. Factor 4, the 30 m buffer imposed by HDOA for the 2009 operation was considered an important factor in the failure of the operation and no buffer will be imposed for the proposed project. Factors 6 and 7, adequate monitoring and response protocols were included in the 2008 FEA and Supplemental FEA, but were not implemented. Robust monitoring and response protocols are included in the proposed project, are funded, and the cooperating partners are committed to ensuring their implementation (see Project Monitoring below).

### Mitigation Measures

The aerial application of rodenticides presents potential environmental hazards to non-target resources, including birds, fish, marine mammals, and invertebrates. Precautions must also be taken to prevent exposure to the field crew loading and applying the rodenticide and post application monitoring. The mitigation measures proposed for this operation are listed below:

1. Prior to the application of bait pellets with rodenticide, the bait delivery system (bait bucket, controller, GPS units, and helicopter) will be tested and calibrated to ensure an accurate application rate.
2. An onboard computer linked to a GPS and light bar will guide the pilot along pre-programmed flight lines over the island at a prescribed airspeed, which will ensure an even application rate.
3. Aerial application of bait pellets will not occur during wind speeds in excess of 35 mph.
4. Aerial application of bait pellets will not occur when heavy rains are forecast to occur within 72 hours.
5. The hopper will be fitted with a deflector that spreads bait out to only one side (120° pattern) to minimize bait application directly into the water. Every reasonable effort will be made to minimize the risk of bait drift into the water; however, it is inevitable that a small number of pellets will roll or bounce into the ocean. The pilot and on-the-ground observers will visually monitor the application of bait and if a malfunction is detected operations will cease until the problem is corrected.
6. Bait will be applied at the lowest rate possible to achieve eradication and any bait spilled will be collected and disposed of according to label instructions.
7. The operation will be conducted in the summer when vulnerable seabirds like albatross chicks are fewer in number and the majority migratory of shorebirds have departed (or not yet returned) to Lehua for their summer breeding grounds.
8. Active nests of albatross and red-tailed tropicbird that are accessible will be mapped and bait removed to prevent chicks from accessing the pellets.
9. Ground-based personnel will be instructed to avoid walking over known shearwater burrows. If a burrow is accidentally collapsed by personnel, it will be excavated to re-open the nest entrance to allow adults access to chicks. Burrows will be rebuilt as best as possible to provide chicks or eggs protection from the elements.
10. To minimize consumption of bait pellets by shorebirds and terrestrial birds the bait pellets are dyed a green or blue color, as birds appear to prefer less than yellow or red food items.

11. Bait pellets are formulated large enough that it will be difficult for a small, seed-eating bird to consume the whole pellet.
12. During project activities, any federally endangered or listed species or species of special concern, that is exhibiting abnormal behavior (e.g., toxicosis) will be collected and delivered to the Kauai Humane Society, a permitted rehabilitation center for therapeutic treatment.
13. Any non-native MBTA-protected bird, that is exhibiting abnormal behavior (e.g., toxicosis) will be provided therapeutic treatment on island or euthanized. That decision will be at the discretion of the project lead and based on the condition of the bird.
14. Risk of helicopter-bird collisions will be minimized by conducting the operation during the summer, flying in the early morning hours before soaring birds begin to catch thermals, and by pilot avoidance measures.
15. All project personnel on the ground will maintain a 100 feet buffer from seals during operations. During aerial bait broadcast, helicopters will avoid hovering near seals and will avoid distributing pellets over seals on the shore. Although, encounters with sea turtles are not expected, similar measures will be applied.
16. Prior to the beginning of the operation, the National Tropical Botanical Garden will perform a plant survey to identify the presence or absence of the federally-listed *Canavalia napaliensis*. All observed plants will be marked and all ground-personnel instructed to avoid contact with these plants.
17. Archaeological sites will be flagged and field personnel informed of prohibitions from walking on or disturbing sites. Instructions will be in accordance with the Lehua Island Protocols and Procedures (LIPP) regarding "Archaeological Site Avoidance." Therefore, no direct or indirect effects from the proposed action will be expected.
18. Signs will be placed on the island alerting visitors of the operation and the presence of rodenticide on the land and potentially in the near shore environment; however, because the low risk of contamination of near-shore marine organisms and the very low risk of humans being impacted from consumption of these organisms there will be no moratorium imposed on harvesting marine organisms.
19. During periods when aerial operations are scheduled on Lehua and Ni'ihau, the USCG will release a notice to mariners advising them to remain clear of the area to prevent hazardous interactions with operational crew and boaters.
20. Ground personnel will use personal protective safety equipment in accordance with bait product labels. Equipment will include, but are not limited to, appropriate clothing, gloves and masks.

21. All personnel visiting or working on Lehua will adhere to the LIPP to prevent new alien species from becoming introduced to Lehua.
22. The compressed grain bait pellets are manufactured to ensure that no active seeds are embedded into the baits to ensure that no active seeds are accidentally introduced onto the island.

#### Project Monitoring

To ensure that the proposed action is meeting the goal of rodent eradication and that the environmental impacts are below the criteria for significance, a validation and effectiveness monitoring program will be implemented. Effectiveness monitoring will be done to ensure that the proposed action is meeting the stated goal of rodent eradication. Validation monitoring will be conducted to ensure that any potentially negative environmental effects of implementing the proposed action are avoided or minimized. Evaluation of monitoring results will determine whether further restoration activities are needed or to alter the mitigation strategy or to continue with the proposed management action.

#### Migratory Bird Permit Issuance

Under regulations implementing the Migratory Bird Treaty Act, the Service will issue a Migratory Bird Special Purpose permit (50 CFR 21.27) for take of migratory birds incidental to the eradication of rats from Lehua Island. The effect on the overall populations of the species and numbers requested will be negligible, if take occurs.

#### Alternatives to the Proposed Action

The Service analyzed two alternatives in addition to the proposed action in the 2017 FEA. Alternative 1 was the No Action alternative in which no action would be taken to eradicate rats from Lehua. Alternative 3 was similar to the proposed action, but would have only used brodifacoum to for the eradication of rats from Lehua, with no follow-up option.

### **EFFECTS AND FINDINGS**

In evaluating the proposed action (Alternative 2) the following criteria were considered: (1) consistency with agency guidelines and policies; (2) extent to which it meets the Service's "Purpose and Need" of the project; and (3) extent to which it responds to or helps to resolve and minimize the environmental issues raised in the public review process. The proposed action is not expected to result in significant impacts to physical and biological resources or the human environment.

1. Agency Guidelines: The proposed action is consistent with the Service statutes and Presidential Order described below. The Service is directed by the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended, to conserve ecosystems upon which threatened and endangered species depend; and the Fish and Wildlife Act of 1956 (16 U.S.C. 742a-742j, not including 742 d-1, 70 Stat. 119), as amended, gives general guidance which can be construed to include alien species control, particularly, that the Secretary of Interior take steps "required for the development, management, advancement, conservation, and protection of fish and wildlife resources." In addition, Presidential Executive Order 13112 on Invasive Species (as amended 12/08/2016 by EO

13751): Section 2 (a)(1)(2)(iv) states that Federal agencies shall..."provide for restoration of native species and habitat conditions in ecosystems that have been invaded."

2. Purpose and Need: The purpose of the proposed action is to eradicate non-native rats from Lehua and maintain its rodent-free status, which will facilitate the restoration of the natural island ecosystem.

## **EFFECTS TO THE HUMAN ENVIRONMENT**

The activities proposed are intended to restore the island and improve its habitat for the native nesting seabirds and plants that inhabit or historically inhabited the island, prior to its degradation by invasive rats. Restoration of Lehua Island by eradicating rats will thus improve the range of beneficial uses of the environment, though not significantly.

Kauai and Ni'ihau residents gather intertidal limpets and fish in waters near Lehua. However, only small quantities of bait are expected to enter the marine environment and will rapidly breakdown and disperse. Because of this, the rodenticide residues in fish and invertebrates will not reach levels that could impact human health.

The FEA concluded that the proposed action will not damage sensitive natural resources, nor emit excessive noise or contaminants. Rather, it will improve Lehua Island's environment. Lehua Island is approximately 0.75 miles offshore from Ni'ihau and 20 miles from Kauai. Thus, the proposed action will not affect any public recreational facilities and will not induce population growth or decline in the area.

Using best management practices will minimize impacts to the environment during the implementation of the proposed action. Several mitigation measures are expected to minimize the incidental take of birds protected under the Migratory Bird Treaty Act; the potential numbers of migratory birds that might be taken will be negligible relative to island and overall populations of these species. The nature of the proposed action and the mitigation measures that will be included are hereby incorporated by reference and will ensure that no significant environmental impacts to the human environment will occur from the Service's proposed action.

The Service concluded that there will be "no effect" on cetaceans or sea turtles and that the proposed action (Alternative 2) is "not likely to adversely affect" Hawaiian monk seals. Mitigation measures for avoiding disturbance to monk seals, will be followed, as will measures to reduce bait drift into the near shore environment. The Service also concluded that no ESA-listed plant or animal species occur within the project action area, therefore the proposed action will have "no effect" on listed terrestrial species. This decision is documented with memo to the file. The Service has also made a determination the proposed project will not adversely affect Essential Fish Habitat (EFH).

The Service's proposed action will have "no adverse effects" on historic sites on Lehua Island, provided that the project uses the 2009 Lehua Archaeological Inventory report to identify archaeological resources and that mitigation measures to avoid disturbing sites are followed.

The proposed action will be reviewed by the appropriate agencies with authority to permit the proposed action. The project cannot proceed without their concurrence that the proposed action will not cause significant damage to federally protected species.

## **PUBLIC INVOLVEMENT**

The project planners have recognized the need for communication with the public and especially the Ni‘ihau Community (Ni‘ihau is less than a mile from Lehua). Therefore, in 2012 the Lehua Island Restoration Steering Committee (LIRSC) extended an invitation to the Ni‘ihau Community to participate in the LIRSC to help shape the potential eradication effort. The Ni‘ihau Community and the Owners of Ni‘ihau have had ongoing representation and input in the LIRSC since that time. In 2014, the LIRSC hosted an event that brought more than 15 members of the Ni‘ihau Community to Oahu to show them Ka‘ena Point, where rats were removed from a fenced area, and the potential benefits of a rat-free Lehua. In 2015, the LIRSC had significant outreach in the lead-up to the aerial placebo bait application and bait availability study on Lehua. The event got media coverage in the newspapers, on television, and various social media. In 2016 and 2017, the LIRSC has had multiple events to engage the public. This included two public information meetings on Kauai and a call-in radio show on Kauai where the public had an opportunity to engage with representatives from the LIRSC. The public has also been engaged via television, newspapers, email and social media to communicate and solicit comments for the EA process. Both the Service and DOFAW understand the value of good communications with the public and will continue to them throughout the project.

On May 5, 2017, the Service posted the DEA on PIFWO’s website for a 14-day period, closing May 26, 2017 (Prior to the Service posting the federal DEA, DOFAW published the State DEA in the State of Hawaii’s Office of Environmental Quality Control bi-weekly bulletin.). Letters were also sent notifying interested parties of the availability of the DEA and requesting comments. A news release was also sent out.

Twelve letters commenting on the DEA were received. Five letters were fully supportive of the project and one of these requested that additional information be provided in the FEA. Three letters were fully opposed to the project and another three letters were neutral. These 6 letters raised several questions, requested additional information, or made recommendations on the following general areas: a) the need to provide greater detail on the efficacy and non-target monitoring protocols; b) the likelihood of bait entering the marine environment and the potential risks posed to non-target animals and humans; c) greater clarity on the factors influencing operational decisions, such as timing and application frequency; d) the need to better describe efforts to communicate with the public; e) disagreed with the need for the project or thought the project was unfeasible; or f) thought the project should wait for better methods. These issues are addressed in the FEA for the proposed project and the responses to the comments are also included in the FEA.

An additional public meeting is scheduled for July 2017 on Kauai Island to inform the public of the decision to move forward with the project and when the project is scheduled to be implemented.



**CONCLUSION**

The proposed action will not have a significant effect on the human environment and, therefore, does not constitute an action that normally requires preparation of an environmental impact statement (EIS). Adverse environmental impacts that could occur are negligible to moderate in intensity. There are no significant impacts on public health and safety, wetlands/waters of the U.S., fish and wildlife, species of concern, wilderness, socioeconomic resources, or visitor use. No highly uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence were identified. Implementation of the proposed action will not violate any federal, state, or local environmental protection laws.

The Service has found the application submitted for a Special Purpose permit (50 CFR 21.27) adequately meets the issuance criteria. The Service has decided to issue a permit to authorize the take of migratory birds incidental to the proposed action.

Based on the foregoing, it has been determined that an EIS is not required for this project and thus will not be prepared.



For

Field Supervisor  
Pacific Islands Fish and Wildlife Office

7.11.2017

Date