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Comment on Draft Environmental Assessment Lehua Island Ecosystem  
Restoration Project, March 2017

April 6, 2017

Thank you for this opportunity to comment on this EA for the eradication of rats from Lehua island. We believe the No Action alternative is best, for the following reasons.

**1. An EIS should be required for this proposed action, for several reasons.**

**A. The proposed action will be in a State Seabird Sanctuary.** HAR 11-200-12(B) states, "In most instances, an action shall be determined to have a significant effect on the environment if it: (11)Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;"

The EA rationalizes, "Although the site is in a State Seabird Sanctuary, the proposed actions are in accordance with HAR 13-125, as well as Federal and State Coastal Zone Management policies and enforceable policies. All actions will protect sensitive resources, including the coastal zone while meeting ecological management objectives." p 86

However, HAR 13-125 and Federal and State Coastal Zone Management policies are not an automatic exemption from HRS 343 and the need to prepare an EIS.

**B. The proposed action will substantially affect rare, threatened, or endangered species, and their habitat.** HAR 11-200-12(B) (9) states an action may be significant if it, "Substantially affects a rare, threatened, or endangered species, or its habitat;"

Significant affects to a habitat could be negative or positive. According to this EA, the proposed eradication will result in a significant change to the Lehua plant, invertebrate, mammal, and bird populations, altering these populations in unpredictable ways. There may be an increase in alien

plants, as happened with rabbit eradication on Lehua. “Rabbit eradication was followed by a roughly 60% increase in vegetation cover that was made up mostly of non-native grasses (83.3% cover) and shrubs (79% cover) (Eijzenga 2011). Plant diversity increased by 31.7 %. Ten new species of herbaceous flowering plants (forbs) and grasses were recorded after rabbit eradication, with one forb being indigenous. (Eijzenga 2011)” p 37

This EA also states, “An increase in the number and diversity of native plants growing on Lehua is expected as a direct impact of rat removal. An additional impact, however, could be an increase in abundance and growth of non-native plants and weeds. The nature of the changes to the vegetation composition may be complex. **Although it is not clear what plants rats prefer, the weed response may be a detriment to the productivity of native plant species** (Eijzenga 2011).” p 79 [Bold added.]

In addition, chicks of several endangered and protected species will be exposed to sub-lethal doses of anticoagulant poison. While this EA assumes that all chicks with sublethal doses of poison will survive, the fact is that sub-lethal poisoning with anticoagulant poisons is known to reduce the viability of an animal, cause it pain and suffering, and may result in death from other causes, including from starvation.

**C. There are cumulative impacts.** According to HAR 11-200-12(b)(8), there may be significant impacts if a project, “Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;” In addition, §11-200-7 states, “Multiple or phased applicant or agency actions. A group of actions proposed by an agency or an applicant shall be treated as a single action when: (1) The component actions are phases or increments of a larger total undertaking; (2) An individual project is a necessary precedent for a larger project;”

This EA for rat eradication is part of a larger Lehua restoration project, which began in 2005. As this project has advanced, rabbits have been eradicated, resulting in unpredicted vegetation and weed growth, followed by a failed rat eradication attempt, to be followed by this proposed eradication re-attempt, to be followed by future weed management. “DOFAW and USFWS have established a monitoring program for Lehua and would implement a weed control program, as necessary, for the benefit of the native ecosystem. The implementation of the weed management program would be implemented under the current programs and policies of the DOFAW and USFWS, subject to availability of funds. All personale visiting or working on Lehua will also

adhere to the Lehua Island Protocols and Procedures (LIPP) to prevent new alien species from becoming established on Lehua (Appendix F)” p 79 [However] It is also stated that, “A native plant restoration project is planned for Lehua once the Pacific rats have been eradicated. Cumulative effects of this future activity and the proposed Pacific rat eradication are not expected.” p 84

It is clear that this is a multi-stage plan to alter the flora and fauna of Lehua island. Numerous poisons will be used, including rodenticides and herbicides, resulting in unknown impacts. While all phases may be carried out with LIPP and other management procedures, these cumulatively will result in significant impacts to the island. Again, it matters not whether these are considered positive or negative impacts of there to be significant impacts and an EIS to be triggered.

## **2. There may be other rodents on Lehua island besides the Pacific rat (*R. exulans*).**

This EA is for the eradication of the Pacific rat from Lehua island. However, if there are other rodents, including mice, targeting Pacific rats alone may result in unexpected shifts in rodent populations instead of achieving eradication of all rodents. The EA states that different species of rats have different bait preferences, different behaviors, and affect different types of birds, so eradicating one species of rodent may simply shift the rodent population to other rodent species and alter the pressure to different bird species. The EA also states that, “the population density of rats on Lehua is not known...” p 25. In addition, the presence of *R. rattus* should be suspect. “The first positive documentation of rodents on the island, however, was in 1960 with the discovery of a carcass, thought to be *R. rattus* but never positively identified (Richardson 1963, Tomich 1986).” p 25

The rodent population should be better characterized to ascertain that removal of *R. exulans* does not increase other rodent populations.

This is also mandated by EO 13751 (a)(2) (iii) “**monitor invasive species populations accurately and reliably**”. Not knowing the population density of rats on Lehua is not accurate or reliable monitoring.

## **3. Aerial applications will enter the ocean.**

“Aerial Bait Application: Bait will be distributed over the entire surface of the island, up to, but not including the intertidal zone, primarily using an aerial broadcast approach modeled after other similar projects conducted in the United States, Canada, Mexico and internationally.” p 42

And, “*Aerial application of rodenticide without coastline buffer*

Improved effectiveness of bait distribution to all rats on Lehua will be achieved by not excluding areas adjacent to coastlines for bait application, thus ensuring a uniform and complete distribution of bait in shoreline areas used by rats.” p 20

“No intentional baiting will occur over the marine environment.” p 43

To achieve this, “The hopper would be fitted with a deflector that spreads bait out to only one side, in an approximately 120-degree pattern, to minimize the risk of bait application directly into the ocean when flying along vertical cliffs and shoreline.” p 44

“Possible mechanisms for rodenticide to reach the ocean include pellets bouncing off or rolling down steep slopes, being blown off course by high winds, or being washed into the ocean by heavy rains before they are eaten by rats. To minimize bait application directly into the water, the hopper would be fitted with a deflector that spreads bait out to only one side, in an approximately 120-degree pattern. The last two potential pathways will be minimized by not applying bait pellets in high winds (greater than 35 mph) or when heavy rains are forecast.” p 55

What is not mitigated is the application to steep slopes, which will result in pellets bouncing off and rolling down the slopes, concentrating at the bottom and not affecting rats along the slopes. This may be a contributing factor in the failed eradication attempt in 2009. Rats along the slopes may survive.

This also means that some poison will enter the water from steep slope applications.

#### **4. Seabird populations have risen while rodents have been on Lehua island.**

“Seabird populations on Lehua have changed somewhat over the period of occasional monitoring from 1931 to the present. Specifically, the colony of Wedge-tailed Shearwaters has probably grown, and colonies of Laysan and Black-footed Albatross have recently appeared, while the historical colony of Brown Noddies has disappeared (Wood *et al.* 2004).” p 35

If the rodents are such a problem, it needs to be explained why there was an increase in Shearwaters, and the arrival of Albatrosses. It seems some bird species are better able to tolerate the rodents than others, and/or that there are different reasons for the appearance and disappearance of species from Lehua other than rodents. This should be addressed in an EIS.

#### **5. Rodents may play a positive role in reducing harmful, alien invertebrate populations.**

“Among the non-native species identified, the most important is the Big-headed Ant, which has been shown to have a negative impact on arthropod fauna native to Hawai‘i (Liebherr and Polhemus 1997; LaPolla *et al.* 2000; Jahn and Beardsley 2000). An alien grasshopper, *Schistocerca nitens*, which has impacted native vegetation on Nihoa Island, was also found on Lehua.” p 37

Rodents prey on ants and grasshoppers, and eradication of rats may result in greater populations of these pest invertebrates. Ants are also known to attack chicks and eggs, and may become a worse problem without rodent control of these pests. There has been no analysis of the harm caused by rodents versus the harm caused by ants.

**6. The use of chemosterilants or hormonal treatments to prevent rodent breeding has not be adequately addressed or considered.**

According to the EA, “The use of hormonal treatments for the eradication of rats on Lehua Island was considered and dismissed because the current available treatments have been designed and tested for population control in urban areas and have never been used to achieve complete eradication.” p 48

Just because hormonal treatments have not been designed for this application, it does not follow that they would not be useful at Lehua. Birth control may lower rodent numbers enough to mitigate rodent impacts on Lehua. Total eradication may not be necessary if rodent populations are too low to harm the environment. It has not been proven that total eradication is necessary, especially since some birds seem to have no major problem from rodents, as mentioned above. And eradication of rodents may result in new environmental problems as ants, grasshoppers, and other rodent prey lose their main predator. Vegetative changes may also result from rodent eradication, as with the rabbit eradication, in increased invasive plant species and higher invasive plant densities on Lehua.

Ecologists are reluctant to admit that invasive species may provide some environmental benefits, so the notion that a few rats is better than none may seem unfathomable. However, this EA states that invasive grasses that proliferated after rabbit eradication actually help prevent erosion. So invasive species can be beneficial. The same reasoning may apply to the rat, which in the current environment on Lehua, serves some environmental service in controlling invertebrates, including invasive ants, and in controlling some weed species. These services would be lost with eradication.

**7. The impact of the anticoagulant poisons on fish and birds is underestimated.**

According to the EA, “The sampling program conducted at Mokapu Island, following aerial application of diphacinone bait, did not detect diphacinone residues in any of the tissue samples collected from three fish species (Primus, 2009, Gael et al., 2008) (Appendix E).” p 57

“Furthermore, studies being conducted by USGS have shown that Triggerfish are some of the least sensitive species to diphacinone (R. Riegerix, *pers. comm.*) which means that they would need to consume very large amounts of bait to receive lethal doses of the toxicant. p 58 In the unlikely event of fish contamination by diphacinone, recent studies using three fish species, indicate that they are amongst the least sensitive animals to the effects of diphacinone (R. Riegerix, *pers. comm.*). Therefore, there are no expected adverse effects to marine fish populations.” p 58

However, not all species respond to diphacinone and brodifacoum in the same way. Small surveys on a few species of fish does not prove that other species of fish will not be affected.

The EA claims, “There is no evidence of lethal secondary exposure of seabirds to diphacinone. No seabird carcasses were found following the aerial broadcast of diphacinone on Mokapu and Lehua (Gale et al., 2008; Orazio et al., 2009). Sub-lethal contamination by diphacinone in seabirds has not been documented following eradication attempts.” p60

It would be very difficult to find all the carcasses of affected birds, especially for seabirds which fly from the site of the poisoning. Days can transpire between the time of primary or secondary ingestion of the poison and the death of the bird. There is also no consideration given to non-lethal doses and its impact on bird survival.

Indeed, this EA optimistically claims, “(Black-footed albatross) Chicks consuming either diphacinone or brodifacoum will experience reduced blood clotting ability, but will recover within a few days.” p 63 “(Laysan albatross)Chicks consuming either diphacinone or brodifacoum will experience reduced blood clotting ability, but will recover within a few days.” p 63

Where is the research that shows that all chicks will recover within a few days from sub-lethal poisoning with anticoagulants? These poisons cause pain and internal bleeding in joints and other internal structures. It is absurd to assume that all chicks exposed to poison will survive. The poison may not be the cause of death, but chicks in pain and suffering may not eat or successfully leave the nest following this trauma.

Many of the chicks that will be affected are either endangered, threatened, or otherwise protected species. Frankly, I am shocked at the insistence, stated several times in the EA, that all sub-lethally poisoned chicks will survive. The author of this EA cannot seriously believe this is true.

Again, "Birds consuming sublethal doses of either diphacinone or brodifacoum will experience reduced blood clotting ability, but will recover within a few days." p 71 Nonsense!

This denial of the obvious reality that chicks exposed to the poison may die as a result is necessary for the justification of the statement that, "*The proposed actions will not affect a rare, threatened or endangered species or its habitat.* The operation will benefit native plant and animal species protected under the Federal and state endangered species laws. The limited and temporary human activities associated with the operation will have a negligible impact on listed species because either they will not be present or project actions combined with mitigation will result in no adverse impacts." p 86

Clearly, this rationalization is needed to avoid an EIS and a ESA take permit. However, both of these should be required.

**In conclusion**, this EA has claimed that rodents are a problem on Lehua, but no Pacific rat population densities are given or known, and the presence of other rodent species has not been determined; some seabird species have colonized Lehua despite rodent populations; and invasive plants and invertebrates may proliferate without the predatory pressure from rodents.

It is assumed that rodent eradication is preferable to control, but no evidence is given that this would be the case at Lehua island.

Aerial applications will include the shoreline, and bait will be distributed along steep cliffs where it will bounce and roll down to high levels of poison at the base of the cliffs and little poison along the cliffs.

Endangered and protected bird chicks will consume sub-lethal doses of bait that can result in death from other causes.

Non-poison alternatives, such as birth control, have been dismissed as non-applicable without proper review and consideration.

And, while it was not mentioned above, the proximity of Lehua island to Niihau (3/4 mile) makes it possible that new rodents will be recruited to the island following any eradication, and

since, according to this EA, rodent populations can explode within a few months following the introduction of a few rats, this eradication may be only temporary.

Finally, this proposed action requires an EIS for its affect on protected species and a protected environment, and for its cumulative impacts along with other phases of Lehua island restoration, which, taken together, clearly requires an EIS.

I hope these comments are helpful in protecting seabirds from this rodent eradication effort. In the final analysis, rodent eradication is not guaranteed, environmental improvement is not guaranteed, but harm to non-target species is guaranteed, which is why we encourage the No Action alternative.

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