

NATURAL AREA RESERVES SYSTEM COMMISSION MEETING

DATE: October 16, 2018

TIME: 9:00am-12:00pm

PLACE: Office of Planning 235 S. Beretania Street, 6th floor

AGENDA

1. Call to order and introduction of members.
2. Approval of the minutes of the February 12, 2018 Natural Area Reserves System Commission meeting.
3. Request to recommend to the Board of Land and Natural Resources to open the Kahauale‘a Natural Area Reserve, Kahauale‘a, Puna, Hawai‘i Island, to the public, pursuant to Hawai‘i Administrative Rules § 13-209-4.5, Tax Map Keys: 1-2-008:001 and 3-1-001:001.
4. Request to recommend to the Board of Land and Natural Resources approval to restrict access to portions of the ‘Āhihi-Kīna‘u Natural Area Reserve, Maui, for a period of up to two years, pursuant to Hawaii Administrative Rules § 13.209-4.5, Tax Map Keys: 2-1-004:073 (portion) and 2-1-004:113.
5. Updates: Native Ecosystem Protection and Management Section Personnel, State Legislative Session.
6. Discuss scheduling and items for future Commission meetings.
7. Adjournment.

Meeting materials are available for public review in advance of the meeting on our Website: <http://dlnr.hawaii.gov/ecosystems/narsc-meeting-October-16-2018/> or **in person** at 1151 Punchbowl Street, Rm 325, Honolulu, Hawaii 96813.

If you require special assistance or auxiliary aids or services to participate in the public hearing process (i.e. sign language interpreter, wheelchair accessibility, or parking designated for the disabled), please contact NARS Staff 72 hours prior to the meeting so that arrangements can be made (808) 587-4170.

**MINUTES OF THE FEBRUARY 12, 2018 NATURAL AREA RESERVES SYSTEM
COMMISSION (NARSC) MEETING, HONOLULU, O'AHU**

COMMISSIONERS PRESENT:

Draft subject to approval

Mr. Leo Asuncion
Mr. Glenn Bauer
Ms. Janis Matsunaga
Dr. Tom Ranker
Dr. Jon Price
Dr. Scott Rowland
Ms. Michelle Clark
Dr. Norine Yeung
Dr. Sheila Conant
Mr. Bob Masuda

COMMISSIONERS ABSENT:

Ms. Hi'ilei Kawelo
Dr. Robin Newbold

PRESENTERS:

Ms. Alison Cohan, Maui Nui Forest Program Director, The Nature Conservancy (TNC)
Mr. Ed Misaki, Moloka'i Programs Director, TNC
Mr. Shalan Crysdale, Hawai'i Island Forest Program Director, TNC
Mr. Bryce Masuda, San Diego Zoo Global Site Manager
Dr. Hanna Mounce

STAFF:

Ms. Emma Yuen, DOFAW Administrative Office (Admin.)
Ms. Leah Laramee, Admin.
Mr. Jason Omick, Admin.
Mr. Jim Cogswell, Admin.
Ms. Sidney Stiefel, Admin.
Ms. Lainie Berry, Admin.
Mr. Fern Duvall, NARS Specialist Maui Nui
Mr. Nicholas Agorastos, NARS Specialist Hawai'i Island
Ms. Jackie Gaudioso-Levita, Wildlife Biologist Hawai'i Island

ITEM 1. Call to order. Vice Chair Price called the meeting to order at 9:30 a.m.

ITEM 2. Approval of the Minutes of the July 31, 2017 Natural Area Reserves System Commission Meeting. Commissioner Glenn Bauer was not present on the meeting minutes but was present at the meeting. Name change from Mr. Rouen Lin of HECO to Mr. Rouen Liu.

MOTION: Commissioners RANKER/ROWLAND moved that the Natural Area Reserves System Commission approved the minutes of July 31, 2017 as corrected.

Motion carried unanimously.

ITEM 3. Natural Area Partnership Program Renewals.

ITEM 3a. Recommendation to the Board of Land and Natural Resources for approval for authorization of funding for The Nature Conservancy for \$1,201,200 during FY 19-24 for continued enrollment in the Natural Area Partnership Program and acceptance and approval of the Waikamoi Preserve Long Range Management Plan, TMK 2-3-05:04, Maui.

Ms. Alison Cohan, Director of the Maui Nui Forest Program for The Nature Conservancy (TNC) presented on Waikamoi Preserve and is seeking renewal of funding for NAPP, with a 2:1 match for State funding.

Haleakalā Ranch was the original Waikamoi Preserve, then extended the Preserve to East Maui Irrigation (EMI) lands to make it the largest private preserve in the State. Waikamoi was established for the native forest birds, now there are 10 native birds—4 of which are endangered, along with 40 endangered species of plants. Waikamoi contains multiple Plant Extinction Prevention targets, with species that have less than 50 individuals in the wild. The Preserve has rare māmane (*Sophora chrysophylla*) dry forest and alpine communities. This area is also the core of the east Maui watershed that provides water to 36,000 residents and businesses.

Main threats are the Himalayan ginger, blackberry, pines (Mexican weeping pine, Sugi, and Monterey pine) and gorse. Waikamoi is steep and rugged, including multiple gulches. Further eastward the forest transfers into subalpine grasslands. The first management actions were to remove ungulates, beginning in 1989. In FY07 the fences were completed by East Maui Watershed Partnerships. There have been no animal catches since FY15. They still have a dog program despite having no pigs in the Preserve.

TNC has been using innovative technology, such as smart traps where staff can close trap doors remotely. They are also using Forward Looking Infra-Red for detecting animals. Pines have spread out, particularly in a 2007 fire, and are being treated aerially via a very targeted approach, with about a 75% efficacy. TNC is also using Herbicide Ballistic Technology treating strawberry guava and also ginger with imazypyr.

Staff are also using unmanned aerial vehicles for spotting weeds. A remote camera has been installed and has provided wifi to areas without cell service, enabling surveillance of the area. A monthly hike and a quarterly service trip are offered.

The University of Hawaii's Economic Research Organization has been contracted to do an economic return on investment. They are running the models on how much net present value the preserve provides.

Commissioner Conant asked if there is monitoring for feral cats. Ms. Cohan explained that the Maui Forest Bird Recovery Program has traps and game cameras that identify cats. She added that they have mapped scat and sign throughout the western Preserve, and the density is relatively low, however there are many mongooses.

Commissioner Clark asked if there is any evidence of predation from cats. Ms. Cohan and Dr. Mounce explained that mongooses haven't been seen chasing 'apapane (*Himatione sanguinea*) and feathers have been found. They also explained a young adult male parrotbill had been taken, evidenced by its remaining legs, which indicated a cat had preyed on it.

Commissioner Bauer asked what the source of information for water capture is and Ms. Cohan shared that it comes from Dr. Giambelluca's data on freshwater recharge.

Commissioner Rowland commented that the quarterly volunteer projects seem infrequent and asked if there is little demand for them. Ms. Cohan explained that it is more due to the lack of staff capacity. She further explained that they used to have monthly volunteer trips but fewer volunteers would attend so they decided to hold less trips and have more attendance per trip.

Commissioner Clark asked what type of herbicide is being used for the pines. Ms. Cohan indicated that glyphosate is being used for Monterey, Mexican weeping, and Sugi pines. She also mentioned that glyphosate is also important.

ITEM 3b. Recommendation to the Board of Land and Natural Resources for approval for authorization of funding for The Nature Conservancy for \$288,715 during FY 19-24 for continued enrollment in the Natural Area Partnership Program and acceptance and approval of the Mo'omomi Preserve Long Range Management Plan, TMK 5-1-02:37, Moloka'i. Mr. Ed Misaki, Director of programs for TNC Moloka'i, presented on the history of work being done at Mo'omomi Preserve. Mr. Misaki shared that NAPP has funded this project for about 30 years and is essential to the function of the conservation work on Moloka'i.

The Mo'omomi Preserve is known as the best example of coastal sand dune ecosystem in Hawai'i. It is important for conservation, as well as cultural traditional use of the ocean. Thirty-eight plant species are known, and 8 are considered rare, 3 of which are endemic to Moloka'i, and 5 that are endangered. Monk Seals regularly visit the area and the largest nesting green sea turtle community is adjacent to the preserve. Since 1999, the area has had an 'ua'u kani (wedge-tailed shearwater, *Puffinus pacificus*) population. In 2014, there were 973 active nests identified compared to the most recent census of over 1,423 active nests identified. Laysan albatross are also now flying over the preserve.

Dogs and cats have been found in the preserve and domestic stray dogs are the biggest threat. They come into the preserve not to eat the birds, but to kill them. Axis deer were at first a smaller

problem, only eating naupaka, but now they are adapting and eating much of the vegetation, and spreading *Prosopis pallida* (mesquite or kiawe) seedlings. They also trample the 'ua'u kani nests, often killing the chicks. *P. pallida* blankets the Preserve. Passive restoration of these native species is occurring. The native 'aki'aki grass (*Sporobolus virginicus*) takes over after the *P. pallida* is removed. They have so far removed over 11 acres of *P. pallida*.

In 2016 the predator proof fence was built. This was after the deer exclosure pilot project was completed, which demonstrated that the deer presence was a big problem. The fence is 1.5 miles long, and protects 175 acres. The fence uses minimal metal products; instead uses wooden posts and deer mesh. The preserve is protected from dogs, cats, and axis deer. The fence is easy to install and should last 15 years. The fence is easily fixed and monthly checks are performed. Game cameras are installed to monitor animals. It is believed that there is no longer a cat presence, but some deer remain.

Engaging with the local community is especially important on the small island of Moloka'i. There are 'ua'u kani banding trips that happen twice a year and attract people from the local community and other islands. The Moloka'i Land Trust also has many trips that involve community members and are focused on weeding and outplanting.

Commissioner Ranker asked what the highest fence an axis deer can jump is. Mr. Misaki explained that this value is debatable but that he believes a 6-foot fence is sufficient, elaborating that the fence provides a visual barrier due to the nature of the mesh.

Commissioner Conant asked if there are cultural fishing resources found at the Preserve. Mr. Misaki explained that the public can use the Preserve for crabbing, fishing and collection of limu and salt.

Commissioner Conant also asked if there are any native yellow-faced bee species (*Hylaeus spp.*) found in the Preserve. Mr. Misaki explained that 2 of the 3 species are found there.

Commissioner Ranker asked what the status of 'ohai (*Sesbania tomentosa*) is in the Preserve. Mr. Misaki explained that 'ohai occurs mainly east of the Preserve but there are a couple of plants present inside and expressed intentions of the staff to outplant 'ohai.

Commissioner Clark asked about the rare *Solanum* species in the preserve and Mr. Misaki explained that the *Solanum nelsonii* is doing well.

ITEM 3c. Recommendation to the Board of Land and Natural Resources for approval for authorization for funding for The Nature Conservancy for \$1,148,400 during FY 19-24 for continued enrollment in the Natural Area Partnership Program and acceptance and approval of the Kamakou Preserve Long Range Management Plan, TMK 5-4-03:26, Moloka'i. Mr. Ed Misaki, Director of programs for TNC Moloka'i, presented on the history of work being done at Kamakou Preserve. Mr. Misaki explained that this is the oldest and first

preserve for TNC Hawai‘i, and held the first conservation easement that was established in 1983. The Preserve contains wet and mesic rainforest with Pēpē‘ōpae bog. The Preserve is part of the East Moloka‘i Watershed Partnership. It is in the ahupua‘a program, starting with the fringing reefs and ending at the mountain tops.

Since 2014, the Kamakou fenced area has been ungulate-free. Extensive weed control is occurring, particularly along the road, and there are few weeds in the upland remote areas. Melastomes are the main problem. Dog collars are used to help keep track of staff who are doing weed sweeps, increasing accuracy and enforcing safety. The Moloka‘i Maui Invasive Species Committee works with them, and shares an office.

There have been many efforts for developing protocols to monitor the resources. Since 2007, there have been 6 transects every 6 years, to note and photograph pig signs, other animal signs, and weed signs. The Plant Extinction Prevention Program has been very helpful, and brought back *Cyanea procera* from the brink of extinction. The creation of the Moloka‘i Fire Task Force has helped address the fire problem. The task force has helped convene firefighting authorities with keys to gates, access to water, etc. Widening of the road in Kawela stopped a 2009 fire.

In 2007, USGS chose Kawela for a ridge to reef project. They studied the reef, stream, vegetation, and soil. The area was called the “moonscape” because it was so barren, with less than 1% ground cover. Then, in 2014, there was 75% vegetation cover, and most of it is native. Erosion was reduced 10-fold due to reduction of feral goats. The Department of Transportation has significantly less overtime since they don’t have to deal with as much sedimentation on the road.

There are monthly volunteer trips to Kamakou, and frequent interaction with local ‘Aha. Twice a year there is a Nature’s Newsflash provided to all Moloka‘i residents. The Earth day festival draws 1,000 people per year, out of a total population of 7,000 on the island.

Commissioner Bauer asked how the animals are prevented from coming up the Manuahi ridge. Mr. Misaki explained that it is not fenced and that they are currently looking at possible implementation of additional fences, adding that the area is extremely rugged.

Commissioner Bauer asked how much time is needed to perform a transect. Mr. Misaki explained that two teams of three people can cover a transect in one day.

Commissioner Yeung asked about constructing a snail enclosure on Moloka‘i. Mr. Duvall explained that he would not oppose it but that they must look into determining a location. Mr. Misaki suggest snail meadow since it is down the road. Commissioner Yeung indicated that they might want to consider a location at a higher elevation after considering climate change and what the snails need to survive.

ITEM 3d. Recommendation to the Board of Land and Natural Resources for approval for authorization of funding for The Nature Conservancy for \$807,132 during FY 19-24 for continued enrollment in the Natural Area Partnership Program and acceptance and approval of the Ka‘ū Preserve Long Range Management Plan, TMK 3-9-7-001:002, 003, 004, 007, Hawai‘i. Mr. Shalan Crysdale, Director of TNC’s Hawai‘i Island forest program presented on the work being done in the Preserve. There is a field team of 4 based out of Na‘alehu. The Preserve has been in the program since 2006. TNC’s Hawai‘i island management covers about 17,258 acres encompassing Kūka‘iau, Kamehame, Ka‘ū, Akina, Kona Hema, and Kahuku Iki.

In 2009, the first fence unit was created, which prevents pigs and mouflon from entering the area. Cane roads provide access to the area and public hunters can access. Twenty-eight pigs have been removed by the public and when interests waned 5 additional boars were removed by staff efforts. Most removal was accomplished by dogs.

In 2014, the Kaiholena fence was built, adding another 800 acres of protected area with a 70 degree slope that provides a natural barrier. So far there have not been any signs of ingress through the natural barrier. Twelve pigs have been removed by the public in the last 6 years and 7 have been removed by staff in the Maka‘ālia unit.

There aren’t as many forest birds, however there are rare *Pritchardia* species. Game cameras have provided a lot of information to determine how many pigs are remaining. About 4 animals are remaining in the unit, including one sow and piglets.

Some areas have sheetflow during periods of heavy rainfall which have required retrofitting fences to have tarps installed as a skirt. The tarps require about one or two monthly checks to restring the areas that moved due to water flowing beneath them.

Strawberry guava, tibouchina, clidemia and silk oak are invading the lower Hilea ridge. This has been confined to about a 25 acre area of core weeds. Clidemia is being reduced, however tibouchina is increasing.

They have installed monitoring plots that are similar to the Moloka‘i Understory Monitoring method. All plots were over 90% native vegetation with a sparse presence of tibouchina and junkus. Monitoring also showed that there are little weeds in the Maka‘ālia area. Strawberry biocontrol is being spread and they are finding it most effective to throw the leaves up in the trees to spread the biocontrol to the highest parts of the leaves.

Drones have been most useful to rule out the presence of weeds, as well as locate 2 rare *Pritchardia lanigera*. These trees had seedlings, which has not ever been seen before. There is FWS funding for 64 Goodnature traps to place them around known *P. lanigera* and *Pittosporum hawaiiense*. Game cameras have found about 4 individual cats, many mongooses, and many rats.

Samples for Rapid 'Ōhi'a Death have shown that there is species B *Ceratosystis*. Near the edge of the preserve there has been a species A found. They are monitoring the known tree for signs of frass.

Vice Chair Price asked what the weed species is in the forest reserve. Mr. Crysdale explained that they are looking for outliers of *Hedygium garnerianum* (toilet brush ginger). They have done about 40 acres of *H. garnerianum* control, particularly along the plantation tunnel trails, which had plantings. Nightblooming jasmine (*Cestrum nocturnum*) was another problem, and they are holding the line in the Kaiholena unit. Australian Tree Fern (*Cyathea australis*) has been found in a certain area, particularly in a nearby eucalyptus population, which is not under control.

Commissioner Conant asked about seabird populations. Mr. Crysdale explained that 'Ua'u (*Pterodroma sandwichensis*) have been reported in Wood Valley.

Commissioner Clark inquired about the plan for Goodnature traps. Mr. Crysdale explained that they intend to put one by a population of loulou (*P. lanigera*), and the remaining 60 will go to the Hoawa (*P. hawaiiense*) and a Kona Hema species of *Pritchardia schattaueri*.

Commissioner Yeung asked if toxicity is known for inverts for Escort (ginger control herbicide). Mr. Crysdale explained he did not know, but the limits are far below the agricultural use. He emphasized that they follow the National Park's protocols, and is also open to the Commission's input on best protocols.

Commissioner Bauer asked if there are weather stations. Mr. Crysdale explained that the ash layer might be reducing the recharge, and causing the sheet flow.

Commissioner Conant asked about the funding situation. Ms. Yuen explained that there is flat funding for the future preserves.

Commissioner Yeung suggested including more information on invertebrates in the Long Range Management Plans.

MOTION: Members RANKER/CONANT moved that the Natural Area Reserves System Commission recommend approval of the Natural Area Partnership Program renewals for the Waikamoi, Mo'omomi, Kamakou and Ka'ū Preserves.

Motion carried unanimously.

ITEM 4. Request for special use permit to install a stream gage in Hanakapi'ai stream by the United States Geological Survey in the Hono O Na Pali Natural Area Reserve, Kaua'i. Ms. Yuen represented Kaua'i and expressed support of this item. Ms. Yuen explained this will help NARS create a helicopter landing zone (LZ) that has already been sought out and that they

have not expressed any concern about the gage. The project is being funded by DLNR State Parks. Funding is secured for about 3 years and more needs to be found. They are thinking they will get 3 years in permits and that it does not make sense to come back to the commission in 3 years. They are suggesting acquisition of/asking for an indefinite permit and if there is evidence USGS is not maintaining the project, the permit would be revoked and USGS would have to remove the gage.

Commissioner Ranker agreed this permitting strategy makes sense. Vice Chair Price added as long as the language is clear to determine when the gage should be dismantled, etc.

Commissioner Clark asked if anyone had visited the site before. Ms. Yuen explained that they have just flown around but plan to carry out a reconnaissance mission soon. Vice Chair Price asked if Ms. Yuen knows why they have been wanting the LZ. Ms. Yuen commented that she did not.

Vice Chair Price asked if staff is taking responsibility for it. Ms. Yuen explained that USGS will help clear it and fund it. Commissioner Bauer commented that while he was with the Water Commission they installed a rain gage and staff had to fly in numerous times because the weather and conditions cause the gage to deteriorate quickly. He further commented that he would imagine they would have to maintain the project on a quarterly basis. Ms. Yuen believes they plan to make maintenance trips every other month. Commissioner Bauer commented that stream and rain gages are always difficult because of funding and if State Parks takes it over, the Water Commission would probably be interested in being involved.

Commissioner Clark expressed concern for the rare plants, explaining knowledge of rare species further up the drainage. Mr. Duvall asked if there were any invertebrate studies that the staff has planned alluding to the situation at Olowalu which happened to be in the middle of a *Laminella* population. Ms. Yuen explained that the reconnaissance mission in March with Adam Williams and Chris Mottley will probably lend a better idea of what is in the area. Commissioner Yeung commented that it would be good to know if the area has rare invertebrates and vertebrates in addition to any rare plants. Ms. Yuen explained that they will look at the area to determine whether the LZ location is suitable or not. Commissioner Rowland commented that if the area is not suitable, they would like to ensure the LZ is not created anyways. Ms. Yuen reassured they will not and that is why staff is attending the reconnaissance mission. Commissioner Conant requested the commission be updated on the status of the report. Commissioner Bauer asked if there is a reason why they chose this location. He further asked if the gage would play a role in flash flood notifications. Ms. Yuen explained that Hanakapi'ai stream was selected in order to track flash floods which have killed many downstream, but she did not know how the flooding information would be disseminated by USGS. Commissioner Bauer commented that he would like to know, emphasizing the value of having that information.

Vice Chair Price asked for clarification that the reconnaissance and creation plans are scheduled for the same trip. He further commented that he believes one trip may not be enough to

understand the biological status of the area. Ms. Yuen responded that is why staff that are trained botanists will be attending. Vice Chair Price reinforced concern for the invertebrates because they are harder to inspect, survey and assess. Commissioner Yeung commented that Adam Williams is the botanist but it would be good to have a designated invertebrate specialist. Commissioner Clark suggested having Cynthia King, William Haines, or David Sisco attend. Commissioner Yeung suggested recommending any of them attend even if it is just to take photos for identification later. Ms. Yuen stated she will make the recommendation and also suggested it can be a recommendation on the permit.

Commissioner Rowland asked how often maintenance would be and how frequently the LZ will be used. Ms. Yuen commented that it will be used 6 times a year by USGS, and more times for staff. Commissioner Rowland emphasized the importance that nothing fragile is at the proposed location especially because of the amount it will be frequented. Vice Chair Price added that it would be useful to have that level of clearance due to the location. Commissioner Clark asked if they will be using special contamination protocol. Ms. Yuen commented that contamination protocols are on the standard conditions of all NARS special use permits.

Vice Chair Price asked for clarification regarding requests in addition to having an invertebrate specialist attend the reconnaissance trip. Commissioner Clark commented that there will also be a follow up report indicating what is in the area. Commissioner Rowland expressed that he is still concerned and asked if NARS staff will be able to determine if they do not want the LZ in the proposed location. Ms. Yuen commented that she does not believe the LZ will have that large of an impact, adding that there are many of them throughout the island and more are continuously being created. She also reminded that USGS will also be utilizing the LZ. She suggested the NARS C could approve the permit right now and hold off on the issuing of it until the reconnaissance is done because it does not need the signature of their administrator before the LZ it is cleared. She added that they can have the permit issued after the reconnaissance and review. Commissioner Conant commented that this condition should be in the motion, adding that experts should be consulted if certain species are unknown like species of invertebrates. Ms. Yuen reminded that they recommended to have a trained entomologist in the field.

Commissioner Yeung discussed the possible presence of the endangered water snail.

Commissioner Clark added the Newcomb (*Erinna newcombi*) snail should be cautioned for as well. Commissioner Yeung suggested that any time a new LZ is being created, not just because USGS will be using it, there should be trained staff reviewing sites moving forward. Ms. Yuen commented that the motion can be edited to have the changes to the reconnaissance mission and response to the report. Commissioner Conant asked if this would mean there will be two trips. Vice Chair Price commented that the trip seems rushed given the nature of how certain species are identified. Ms. Yuen clarified the sequence as: 1. Fly in with Adam as botanical specialist, an invertebrate specialist and another NARS staff member. 2. Walk to the new location, check for any rare flora and fauna, create the LZ or not. She furthered that they would then create the report which would indicate what was found and subsequently approve the permit to have the rain gage installed. She clarified that they would want to have the survey immediately. Vice Chair Price commented that there should be language indicating if a candidate is identified, there

would be a hold put on the creation of the LZ until identified. Commissioner Conant expressed discomfort with having the survey condensed into one trip. Ms. Yuen asked for attending NARS specialists' input about creating new LZs. Mr. Duvall commented that if it is known the area has rare species, surveys are conducted and everything is not condensed into one mission.

Commissioner Clark asked if it is a hardship to conduct two trips, expressing that the Commission feels uncomfortable approving the mission because it seems rushed. Mr. Duvall shared they have had similar situations on Maui with USGS and they required USGS conduct vegetation surveys prior to creating a LZ. Ms. Yuen asked if they had to get it approved by the NARS Commission. Mr. Duvall clarified they did not. Ms. Yuen expressed concern in having to call another Commission meeting together in the next few months and asked if staff could be delegated to approve. Chair Price commented he thought that was fair. Commissioner Matsunaga expressed the concern lies in no one knowing what is at the site. Ms. Yuen commented that conducting 2 trips, without a new LZ to leave from, takes a lot of staff hours. Chair Price added, like Mr. Duvall, ease in decision making varies depending on the area. He added that seeing the region is close to a stream that is a finite region with flow in addition to other knowledge of the area, it seems likely there are rare species there. Ms. Yuen asked if he is worried about the stream being impacted by the LZ or the gage. She added that the gage will be installed after the recon trip and therefore there could be a thorough statement regarding the gage.

Commissioner Clark noted that what she does know about the area is that there are generally a lot of rare species. Commissioner Bauer commented that they will need a Water Commission permit for the gage. Ms. Gaudioso-Levita asked if any previous invertebrate surveys have been conducted on the section of stream or nearby. Ms. Yuen explained there most likely has not been but that this will be a great opportunity to do so. Ms. Gaudioso-Levita commented that this seems like the main gap in knowledge for making decisions. Ms. Yuen commented that staff on the reconnaissance trip can look at the stream and conduct assessments to see if anything will be impacted by the stream and follow with a report contingent on that issue. She added that she doesn't not believe the gage itself will have an impact on flora and fauna. Chair Price commented that the LZ seems like it has the larger footprint.

Ms. Yuen asked if anyone has recommended wording for the motion that was stated. Commissioner Rowland asked if there is a rush from USGS. Ms. Yuen explained they want it established by September 2018 because their funding will expire. Commissioner Rowland suggested creating a permit to issue the LZ creation first. Ms. Yuen reminded that DOFAW has the authority to permit LZ establishment. Commissioner Yeung commented that it seems the LZ will be created regardless. Commissioner Clark asked for clarification if USGS will be paying. Ms. Yuen confirmed but that DOFAW is jointly involved in the project. Commissioner Rowland commented that he has confidence in NARS staff to be concerned enough. Commissioner Asuncion asked what would happen if they discovered the location is not suitable. Ms. Yuen clarified they will not establish the LZ and will survey other areas.

Vice Chair Price commented the unknown factor seems the most worrisome. Commissioner Rowland commented the wording in the motion needs to address the rain gage, furthering that whatever cautionary words are used for the LZ should also be applied to the gage and maintenance (i.e. people walking through 6 times a year). Commissioner Bauer agreed emphasizing that is why USGS should be at the meeting because they are the ones who know what installing and maintaining the gage entails. Commissioner Rowland asked Ms. Yuen if they know that. Ms. Yuen explained they are responsible for all other permits so they should know. Commissioner Rowland emphasized that the situation can't be fully understood without having people on the ground. Commissioner Bauer commented that it appears the site was chosen because it is more open than other areas.

Commissioner Conant asked to have the motion restated. Chair Price clarified the motion is approval with a recommendation that the reconnaissance trip is accompanied by experts in botanical and invertebrate, with deferral of any action until any taxonomic uncertainties are identified. Commissioner Conant asked if that requires 2 trips or not. Vice Chair Price indicated they would proceed with the LZ if nothing rare is found. He added they can follow their recommendation to be extra cautious. Commissioner Yeung asked if that includes both terrestrial and aquatic species. Commissioner Ranker added there is a variety of rare ferns that grow in the area near waterways. Ms. Yuen indicated she will tell Adam.

Vice Chair Price added if everyone was clear on the wording, adding that it seems like the motion builds in some flexibility for staff. He asked if they have a motion to approve pending the second recommendation.

MOTION: Members MATSUNAGA/ROWLAND moved to approve the request for a special use permit to install a stream gage in Hanakapi'ai stream by the United States Geological Survey in the Hono O Na Pali Natural Area Reserve; with the provision that botanical and invertebrate specialists attend the reconnaissance mission and there be deferral of any action until any taxonomic uncertainties are identified.

Commissioners Yeung and Conant opposed the motion.

Motion carried.

ITEM 6. Renewal request for continued work by San Diego Zoo Global (SDZG) to continue to work on the release of 'alalā (*Corvus hawaiiensis*) back into the wild at Pu'u Maka'ala Natural Area Reserve, island of Hawai'i. Bryce Masuda, San Diego Zoo Global (SDZG) Site Manager, presented on past and current reintroduction efforts.

The project has a flight conditioning aviary that is a greenhouse styled structure for 'alalā to develop flight muscles prior to release. There is a total of around 12 birds planned for the next release. The release aviary is more north to the Mauna Loa Boys School Unit. The aviary was built last summer with refabricated panels, mesh netting on top with much wood support. The

plan is to move the aviary to another area of the NAR. Part of the aviary remains so 'ālalā can come in and get supplemental food. The Mauna Loa Boys School Unit is a temporary field camp that allowed the team to reduce their footprint, reducing the number of times they had to drive in and out.

There are 4 established telemetry towers that provide a means to monitor and track 'ālalā. They are still a work in progress. The current accuracy is around 100 m. Bryce is working closely with Evan (USGS) and Alex Wong (NARS).

Releases in the fall of 2017 were divided into two groups because an aviary can only hold around 6 birds at a time. The birds were divided based on behavior, sex ratios and parent rearing. Post-release movements remained close to the release site but as time passed the birds ventured farther away. The birds still return for supplemental food and always return to the site after venturing off. The birds are found feeding on native fruits, invertebrates and the supplemental food. They forage on branch surfaces, under tree bark, in crevices and on the ground. They return regularly but are essentially wild birds at this point. They appear to be one cohesive unit socially. Some of the birds are going to reach 2 years old, approaching sexual maturity, so it will be interesting to see how they pair. Rather than being predated by 'io, they chase them away which is their natural behavior. The birds in the second release were 10 months older than those of the first, the release site was 700 feet further above sea level, the forest was different and more complex, and predators were refined.

The requested permit conditions are essentially the same as the current permit, which encompasses road access, constructing a new release aviary, continuing providing supplemental food, et cetera. The plan is to release another set of birds this summer.

Commissioner Conant suggested since a wounded 'ōhi'a tree is a key way ROD spreads, to include prevention of wounding of 'ōhi'a trees.

Vice Chair Price asked out of curiosity what the process of the birds being gradually weaned off the supplemental feed is. Mr. Masuda explained they are trying to make a database for information about the amount of supplemental feed being consumed each day. He added they have recently been seeing more fluctuations but are expecting to see downward trends due to the fact they tend to wean off on their own. He further explained that tracking their movements is key because the further they travel the more independent they are.

Commissioner Rowland asked if there is any way to entice them to return. Mr. Masuda explained there is a certain feeder that always makes them come back. He further explained they intended to make them as wild as possible so they are not trained to respond to any specific signal, which is also a testament to the conditions of the NAR at Pu'u Maka'ala as well.

Commissioner Conant asked for Mr. Agorastos' input. Mr. Agorastos explained he is in full support of the project. He further highlighted a couple of points for the commission to consider

which revolved around the additional unbudgeted pressure the project puts on NARS staff. He finished emphasizing his support of the project and clarifying that the short-term concerns outweigh the opportunity. Commissioner Conant asked what the possibilities are for NARS to get more support from SDZG. Mr. Masuda agreed with the point made and expressed it is worth sitting down with Mr. Agorastos to discuss. He added that he encourages his team to pull weeds when they see them to help NARS. Mr. Agorastos clarified that most of the manpower he brought to attention encompasses regular due diligence (~75%).

Vice Chair Price asked if there were any further questions or comments.

MOTION: Members CONANT/RANKER moved to renew the request for continued work by SDZG to continue to work on the release of ‘alalā (*Corvus hawaiiensis*) back into the wild at Pu‘u Maka‘ala NAR, island of Hawai‘i.

Motion carried unanimously.

ITEM 5. Request for delegation of authority to Branch Managers or Administrator of the Division of Forestry and Wildlife to issue permits listed in Exhibit 2 for Hawai‘i Administrative Rules Chapter 13-209, Rules regulating Natural Area Reserves. Ms. Yuen explained DOFAW has requested to amend the list of types of activities NARS Commission delegates to the Staff, Branch Manager, Administrator and the Chairperson to sign off on. She explained the purpose of this request is to streamline things that have not been put on the list before, which would allow staff to grant permits for access into areas closed off after hours. She highlighted DOFAW currently has a wildlife biologist, entomologist and botanist that approve statewide permits. She further explained they look to the specialists for guidance in addition to the NAR special use permits and thought it would be good to amend these types of activities. She further explained they want to streamline permitting to allow groups that request for permits to do beneficial activities to apply through them rather than wait long periods of time for the next commission meeting.

Commissioner Clark asked if this is because there is no longer an executive secretary position. Ms. Yuen confirmed and explained that the executive secretary position used to act on behalf of the NARS commission. Commissioner Conant asked if anything on the current list is removed. Ms. Yuen explained nothing is removed and only additions are made. Chair Price commented that it seems some of the amendments have other areas of delegation and so it does not appear like they would make the system less regulated. Ms. Yuen added that now they have specialists whereas they did not before. Commissioner Yeung asked what does change and what the commission will review if approved. Ms. Yuen explained infrastructure permits that last over longer periods of time will still come to the commission. She further explained that the commission will review research permits depending on the impact, adding that if the research involves an activity such as installing towers it will need to be reviewed by the commission. She also highlighted that staff can bump permit approval to the commission if they want additional opinions and public opinions.

MOTION: Members CONANT/BAUER moved to approve the request for delegation of authority to Branch Managers or Administrator of the Division of Forestry and Wildlife to issue permits listed in Exhibit 2 for Hawai'i Administrative Rules Chapter 13-209, Rules regulating Natural Area Reserves.

Motion carried unanimously.

ITEM 7. Update on the planned Kiwikiu translocation to the Nakula NAR (Maui) and associated activities and improvements. Hanna Mounce presented on behalf of the Maui Forest Bird Recovery Project (MFBRP) and their work in Nakula NAR. Kiwikiu are the most endangered bird on island compared to fossil records that show they used to be distributed island wide. They are federally listed as critically endangered. The Kiwikiu have a unique life history with one chick that depends on its parents for a year, which also makes them difficult to save.

Abundance estimates are critically low and the birds are also hard to detect due to their cryptic nature and distribution across multiple landowners. The surveys are conducted using vpc counts every 5 years. The data shows a population decline and estimates indicate a wild population under 300.

The MFBRP worked with the po'ouli project until the last died in 2004, now MFBRP is focusing on Kiwikiu. Reintroduction of Kiwikiu have been in the USFWS plan since it was drafted.

Nakula NAR links to other areas that are becoming restored, if introduced at Nakula they anticipate the birds will spread into other nearby areas. The existing infrastructure in the area is the MFBRP Camp Release.

The initial restoration timeline involved large-scale outplantings and predator abundance studies. Current techniques focus most of the planting in corridors. Natural regeneration strips are snaked to encourage the natural regeneration of koa and a'ali'i that is then supplemented with outplants. There are erosion scars with traps that still need to be worked on.

The proposed predator control focuses on rats, mongooses and cats. They have strategized aviary locations and plan to spread them to avoid territorial stress. The proposed release cages have 2 birds per cage. The proposed feeders slowly dispense live meal worms over time which reduces the number of times they need to be checked.

Proposed releases and monitoring are planned over 3 years but are adaptive depending on how the birds perform. January 2019 is the intended first release.

Each trip has a maximum of 10 people with only 3-4 that are actual staff.

Commissioner Bauer asked if they have used any Kaho‘olawe Island Reserve Commission (KIRC) people for erosion scars. Ms. Mounce shared that they have conversed with KIRC but KIRC has never seen their site.

Commissioner Clark asked what is being used to make erosion scars. Ms. Mounce clarified it is a Roundup mix applied by backpack spraying.

Ms. Gaudioso-Levita asked if they have conducted surveys for Lepidoptera in the area. Mr. Duvall confirmed that Bob Peck conducted a survey and found per unit vegetation, there is a greater abundance of the insect species they depend upon in the Nakula area. In terms of targeted outplants, the Kiwikiu plants are being targeted.

Ms. Gaudioso-Levita asked how long they plan to supplement feed and Ms. Mounce indicated that it depends on what the birds tell them. She further clarified that the Kiwikiu they plan to release that are older have been supplement fed all their lives, so they may depend longer.

ITEM 8. Updates: Native Ecosystem Protection and Management Section Personnel, State Legislative Session. Ms. Yuen introduced Leah Laramee as the new NEPM planner and Lainie Berry as the new Forest Bird Biologist. She also announced Matt Kier as the new State Botanist. Ms. Yuen suggested deferring the remaining items offline.

Vice Chair Price asked if there were any further comments and with no further comment adjourned the NARS C meeting at 1:12 p.m.

State of Hawai'i
DEPARTMENT OF LAND AND NATURAL RESOURCES
Division of Forestry and Wildlife
Honolulu, Hawai'i 96813

October 16, 2018

Chairperson and Members
Natural Area Reserves System Commission
State of Hawai'i
Honolulu, Hawai'i

NARS Commission Members:

SUBJECT: REQUEST TO RECOMMEND TO THE BOARD OF LAND AND NATURAL RESOURCES TO OPEN THE KAHUAUALE'A NATURAL AREA RESERVE, KAHUAUALE'A, PUNA, HAWAI'I ISLAND, TO THE PUBLIC, PURSUANT TO HAWAI'I ADMINISTRATIVE RULES § 13-209-4.5, TAX MAP KEYS: 1-2-008:001 AND 3-1-001:001.

BACKGROUND:

Kīlauea Volcano has been erupting continuously since January 1983. On July 21, 2007, Kīlauea began erupting as fissure lava flows from vents on the State lands of Kahauale'a Natural Area Reserve (NAR), particularly Pu'u 'Ō'ō, the source of the 2007 eruption. An unofficial and unmanaged hiking trail (known as the Captain's Trail, Kahauale'a Trail, or Pu'u 'Ō'ō Trail), developed over years of use, is widely publicized in visitor publications such as *Hawaii Revealed*, and encourages people to use the trail to access Pu'u 'Ō'ō. The northern slope of Pu'u 'Ō'ō is within the Kahauale'a NAR; with the majority of the vent within Hawai'i Volcanoes National Park (NPS).

Due to public safety concerns relating to unprepared visitors attempting to visit an active lava flow and an active volcanic area and the heightened risk of sulfur dioxide inhalation, and after discussions with staff from USGS-HVO, the Board closed Kahauale'a NAR to public access effective July 25, 2007, and closures have been continuously extended ever since. In May 2008, a Memorandum of Understanding was approved between the Board and the USGS-HVO that allows USGS-HVO access to Kahauale'a, for the purposes of volcanic hazard monitoring and provides the Board with hazard assessments and recommendations. Division staff regularly monitors the signage and barricade at the Captain's Trail, and Division of Conservation and Resource Enforcement (DOCARE) officers patrol the area. Over the years, in response to the number of rescues and incidents at Kahauale'a, NARS staff have partnered with the Hawai'i County Fire Department to increase signage and make minor trail improvements to minimize the number of hikers who become lost by going off-trail. A number of closure signs and fenced barriers have been placed across the trail. The NPS continues to restrict access to Pu'u 'Ō'ō.

During the closures, Special Use Permit Applications to conduct research, filming, cultural practices, and other uses have been considered on a case-by-case basis with restrictive conditions included as necessary. HVO also helps review permit requests when requested.

ANALYSIS:

Pursuant to Hawai'i Administrative Rule (HAR) § 13-209-4.5, the Board or its authorized representative, with the approval of the commission, may close or restrict the public use of all or any portion of a natural area reserve for up to two years, when deemed necessary by the commission for the protection of the

natural, geological, or cultural resources of the area or the safety and welfare of persons or property, by the posting of appropriate signs indicating the duration, extent, and scope of closure. Closures may be renewed with the approval of the board or its authorized representative and the commission. All persons shall observe and abide by the officially posted signs designating closed areas. The existing closure is effective until July 24, 2019.

NARS staff communicates with USGS-HVO staff on a regular basis about the status and condition of the area to confirm that the area continues to pose a safety risk to visitors. As indicated by the attached letter from USGS-HVO, the major threats from the eruption since 2007 (including active lava flows and sulfur dioxide emissions in excess of 2,000 tons per day) are no longer occurring. While long-term threats continue to exist, the status of the area is similar to the pre-2007 eruption conditions. The Division is seeking approval to reopen the entire 22,520.88-acre NAR. Reopening would make the area available to hiking and nature study in groups sizes of ten or less as well as daily year-round game mammal and bird hunting pursuant to HAR § 13-122, 123, and 209.

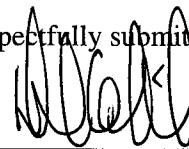
The Commission is not being requested to recommend a specific date of the reopening. If the Commission recommends the reopening of the NAR, this action will also need to be approved by the Board of Land and Natural Resources to become enacted. The Division will submit this request to the Board when the appropriate hazard signage is in place, and the date of the reopening will be determined by the Board.

The Division also has the flexibility to close the NAR in a short time frame if conditions worsen. On March 31, 2017, the Natural Area Reserves System Commission delegated authority to the Administrator of the Division of Forestry and Wildlife to temporarily close areas. On July 14, 2017, the Board enacted that delegation of authority, which provided a 60-day temporary closure authorization.

RECOMMENDATION:

That the Commission recommend to the Board of Land and Natural Resources to open the Kahauale‘a Natural Area Reserve, Kahauale‘a, Puna, Hawai‘i Island, to the public, pursuant to Hawai‘i Administrative Rules § 13-209-4.5, Tax Map Keys: 1-2-008:001 and 3-1-001:001.

Respectfully submitted,



DAVID G. SMITH, Administrator

Attachments: USGS-HVO letter
Maps



United States Department of the Interior

U.S. GEOLOGICAL SURVEY
Hawaiian Volcano Observatory
Post Office Box 51
Hawaii National Park, Hawai'i 96718-0051



IN REPLY REFER TO:

To: Betsy Gagne, Department of Land and Natural Resources
Cc: John Broward, Chief Ranger, HAVO
From: Christina Neal, Scientist-in-Charge
Date: October 4, 2018
Subject: Current Hazard Assessment of the Kahauale'a NAR

Eruptive activity at the Pu'u 'Ō'ō vent on Kīlauea Volcano's East Rift Zone ceased on April 30, 2018. As of today's overflight of the area, there is no live lava in or around the vent.

Additionally, there are no signs that significant pressure is building beneath the immediate area of Pu'u 'Ō'ō. Despite that observation, it is impossible to know if or when eruptive activity could resume in the immediate area of Pu'u 'Ō'ō which is part of the very active East Rift Zone.

HVO monitoring is in place to detect any changes of concern across the volcano. Web cameras are still operational atop and near Pu'u 'Ō'ō:

https://volcanoes.usgs.gov/volcanoes/kilauea/multimedia_webcams.html

Even without active eruption, volcanic hazards persist in the Kahauale'a NAR. They include low levels of volcanic gas; rugged, jagged unstable surfaces; potential ground collapse; hidden and exposed ground cracks; and explosions and ash emission.

Gas Emissions: Pu'u 'Ō'ō continues to release sulfur dioxide (SO₂). Currently, due to cooling of the vent, minor amounts of hydrogen sulfide (H₂S) gas are being emitted as well. SO₂ emissions from East Rift Zone vents are less than 250 metric tons per day, posing a limited hazard in the immediate vicinity of Pu'u 'Ō'ō. SO₂ concentrations at a distance of 8.5 km of Pu'u 'Ō'ō, have not exceeded 1 ppm since early August. A healthy steam plume has been observed issuing from the crater almost every day. HVO does not have real-time gas monitoring equipment in place near Pu'u 'Ō'ō.

Jagged and unstable surfaces, areas of high temperature: Lava flows are often unstable and surfaces can collapse underfoot posing a fall, trip, and cut hazard anywhere on the lava flow field. The recently active 61g lava flow tube may remain hot or warm for some time, although with time caves will cool.

Ground Collapse: The Pu'u 'Ō'ō cone and other features produced by lava flows over the past decades pose a sudden collapse hazard, particularly in the area of the recent 61g lava tube and crater areas near the deep, steep-walled and likely overhung summit crater rim and down the flanks of Pu'u 'Ō'ō. Intermittent collapses into the summit crater have continued, some triggered by local earthquakes.



Ground Cracks: The area north of the rift zone and the 1983-2018 flow field consists of mostly tube-fed pāhoehoe at least 400-500 years old. There are large cracks in this area. Some are known and others are not, and none have been well-mapped. Cracks are often well-hidden by vegetation and can be tens-of-meters to over-one-hundred-meters deep. These are a significant hazard to anyone walking in the area. Additional ground cracks occur on the Pu‘u ‘Ō‘ō cone and likely other areas of the recent flow field.

Explosions and ash: Collapse and explosions from Pu‘u ‘Ō‘ō producing ashy plumes that can rise thousands of feet into the air remain possible as long as the inner crater is hot and/or the walls unstable. These events are likely to impact only the area immediately around and downwind of Pu‘u ‘Ō‘ō.

Please contact us if you have any questions or wish to discuss these comments further. HVO very much appreciates the ongoing support and collaboration with DLNR.



Christina Neal
Scientist in Charge
U.S. Geological Survey
Hawaiian Volcano Observatory
808-967-8853
Cell 808-333-2979

Kahaule'a Natural Area Reserve

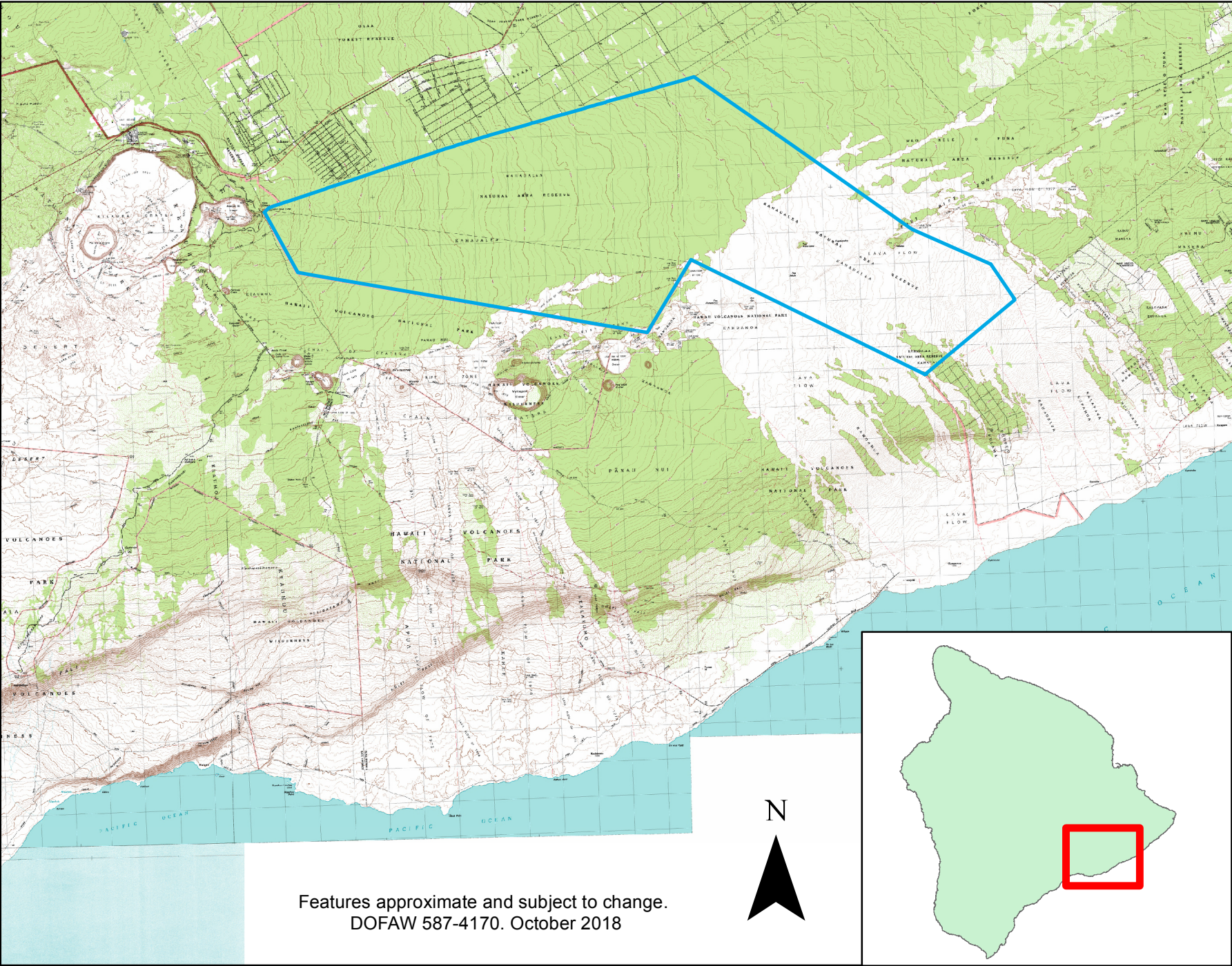




Figure 1. Kahaualeʻa NAR (blue outline) (Google Earth imagery date 2013)

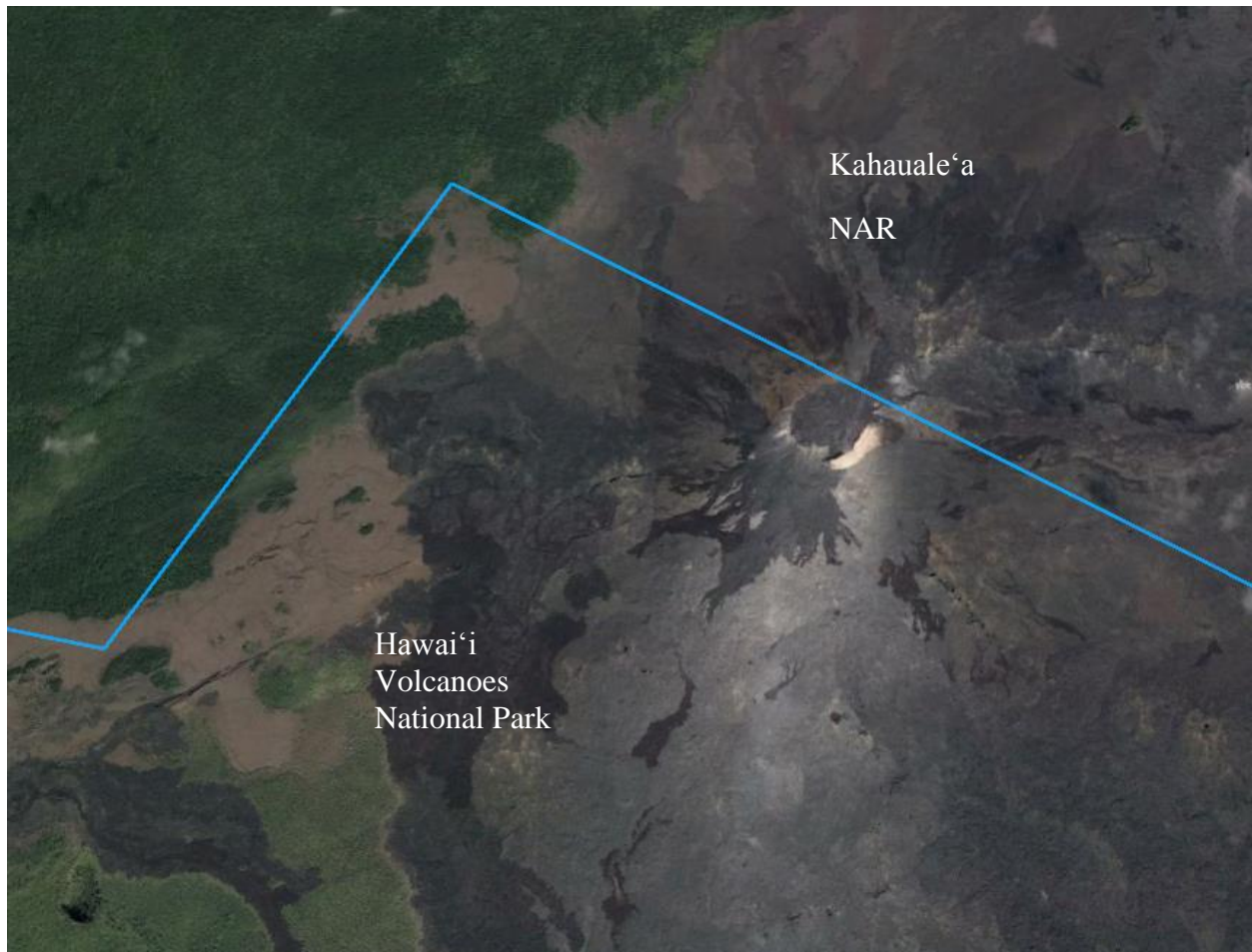


Figure 2. Close-up of the Kahaualeʻa NAR boundary (blue outline) and the Puʻu ʻŌʻō Crater (Google Earth imagery date 2013)

State of Hawai'i
DEPARTMENT OF LAND AND NATURAL RESOURCES
Division of Forestry and Wildlife
Honolulu, Hawai'i 96813

October 16, 2018

Chairperson and Members
Natural Area Reserves System Commission
State of Hawai'i
Honolulu, Hawai'i

NARS Commission Members:

SUBJECT: REQUEST TO RECOMMEND TO THE BOARD OF LAND AND NATURAL RESOURCES APPROVAL TO RESTRICT ACCESS TO PORTIONS OF THE 'ĀHIHI-KĪNA'U NATURAL AREA RESERVE, MAUI, FOR A PERIOD OF UP TO TWO YEARS, PURSUANT TO HAWAII ADMINISTRATIVE RULES § 13.209-4.5, TAX MAP KEYS: 2-1-4:073 (PORTION) AND 2-1-004:113.

BACKGROUND:

In 1973, 'Āhihi-Kīna'u was designated a Natural Area Reserve (NAR), making it one of the most highly protected lands under state jurisdiction. By law, all resources within the Reserve are protected from harm or disturbance. The NAR includes rare and endangered natural and cultural resources, including anchialine pool ecosystems, near-shore marine ecosystems, lava flow formations and their associated habitats, extensive intact Hawaiian cultural and historic sites, as well as remnant native coastal dry shrublands and forests. At the time the area had little or no visitation.

By April 2004, growing numbers of people in the area led to user conflicts between the public and commercial activity, in particular, commercial kayak tours. Responding to concerns about unregulated commercial activity, and apparent over use by the public of sensitive natural and cultural resources found there, the Department of Land and Natural Resources (DLNR) formed the 'Āhihi-Kīna'u Natural Area Reserve/ Keone'ō'io Advisory Group (AKNAR/KAG) to act as a public forum and to provide advice to management decision-making. After meeting with the AKNAR/KAG, the Natural Area Reserves System Commission (NARSC), and the public, the DLNR in 2004 prohibited all commercial activity in the NAR and neighboring Keone'ō'io (La Perouse Bay). This decision was based on a DLNR Hierarchy of Use Policy (1998) which directs DLNR to protect the resources first, allow public use second, and allow commercial use third, and only if it does not conflict or interfere with public use and resource protection.

Later in 2004, DOFAW secured a grant from the Hawai'i Tourism Authority (HTA) to increase management capacity at 'Āhihi-Kīna'u. This grant funded two Rangers to support a dedicated on-site presence. A separate grant to the Hawai'i Wildlife Fund supported the presence of naturalists to provide information for visitors to the Reserve. During this time, human use studies, a cultural resources study, and natural resources surveys were conducted in order to document the health and status of the resources and any changes that may have occurred after the ban on commercial activity. These studies showed that user numbers did not significantly decrease after the ban and negative impacts to protected resources were still occurring.

In order to address the continuing concerns about resource damage and negative impacts by visitors, the AKNAR/KAG then recommended restricting all public access to Cape Kīna'u because natural and

cultural resources were being trampled and degraded by misguided users who were hiking out on unmarked trails to go snorkeling. The NARSC approved the Advisory Group's recommendation, and voted unanimously in 2005 to recommend to the BLNR an immediate restriction of public access to this area. Before the recommendation was forwarded to the BLNR, however, the Attorney General advised that the Department did not have the legal authority to take such action.

The NARS Administrative Rules were then amended, effective January 2007, and, among other things, specifically authorized the Department to close areas or restrict access to protect natural, geological or cultural resources or public safety to portions of, or an entire NAR, for a period of up to two years at a time.

On August 1, 2008, with approval from the NARSC and BLNR, staff restricted access to portions of 'Āhihi-Kīna'u NAR. During those two years, the 2008 Action Plan was implemented resulting in the successful execution of baseline surveys for geological, coastal, marine, anchialine, and cultural resources. Human activity was also monitored by rangers.

After analyzing the data from the resource surveys, it became clear that some of the resources in the restricted areas were showing improvement. Endangered birds were utilizing areas of the Reserve that they had never been recorded in, most likely due to impacts of the high human use before the restrictions. Breeding success showed improvement and new species of migratory birds appeared in the Reserve for the first time. Green sea turtles were also recorded basking on beaches in one of the restricted areas on a consistent basis. Previous to the 2008 restrictions, turtles had never been recorded in these popular recreational areas. Hawaiian Monk Seals have also hauled ashore to rest in the same areas.

In addition to conducting resource and human surveys, staff also worked with The Nature Conservancy of Hawai'i to develop a management plan for the Reserve to guide conservation efforts and to communicate management goals and objectives to constituents and partners. Ten community meetings were held to gather expert input and suggestions. The management plan includes long term goals as well as an implementation plan, to guide short term management. The management plan was recommended by the NARSC and subsequently approved by the BLNR in 2012.

In addition to addressing the threats posed by human activity to the natural resources of the Reserve, the management plan also recognized that resources and public safety may be impacted by the possible presence of unexploded ordnance (UXO) in the Reserve. In fact, staff did find UXO, resulting in a U.S. Army Corps of Engineers (USACE) Site Investigation (SI) in 2008, that concluded there was sufficient justification to have USACE proceed with a more detailed Remedial Investigation (RI) across the Reserve to determine the hazard level in this area. The Reserve was formerly part of the Kanahena bombing range used for target practice during World War II and is officially referred to by USACE as the Maui Bombing Targets-Kanahena project site.

The RI field survey was completed in 2011, with reports and meetings with staff and others in 2012. The Final RI report was presented in a meeting in early 2013 and concluded that significant hazards still exist, rated at a Hazard Level 2 due to historical findings of UXO in portions of the Reserve, and need to be addressed through the follow on Feasibility Study (FS) process, necessitating this request for continued closure of the area, with restricted access, until long term solutions can be identified. The FS is evaluating potential future courses of action for the project site such as a UXO removal plan, institutional controls, and/or other suitable remedies based on what was learned during the RI. The FS will be ongoing through the next two years; until an agreement between DLNR and USACE is reached that will provide long term remedies to both protect the resources and address any remaining safety concerns for staff and the public. USACE remediation projects follow CERCLA (Comprehensive Environmental Response, Compensation and Liability Act) guidelines used by the U.S. Environmental Protection

Agency. These include Phase 1: Site Investigation (completed in 2008); Phase 2: Remedial Investigation/Feasibility Study (Completed June 2018); and Phase 3: Remedial Action to complete the process (Completion planned for September 2018).

ANALYSIS:

The Division of Forestry and Wildlife (DOFAW) requests continued closure of portions of 'Āhihi-Kina'u NAR to allow time for addressing how to continue to protect the natural resources of the NAR now that the UXO removal work has been accomplished. Actions outlined and described are deemed essential to ensure the long-term viability of the unique high-quality ecosystems, geologic landscape and cultural sites found there, as mandated by HRS §195-1. The UXO removal resulted in the recommendation of possible remedies that will help DOFAW determine how much and what types of human use can be allowed in the Reserve that will not negatively impact the natural or cultural resources, put anyone at risk from possible undetected UXO found there, or diminish the overall value of the Reserve. The public will have the opportunity to review and offer in-put as part of the considerations for how and where to protect the NAR resources and allow for public use, being certain that negative impacts will not accrue. Some proposed actions may necessitate UXO training for staff, or clearing of specific trails and other areas, particularly cultural sites, during this next requested closure period.

The 'Āhihi-Kina'u NAR/Keone'ō'io Advisory Group has endorsed this process, and members present had no objections to the continued closure of the portion of Reserve at its March 24, 2016 meeting on Maui. While this process is ongoing, staff continues to follow the Implementation Plan and Management Plan approved by the Board of Land and Natural Resources October 12, 2012.

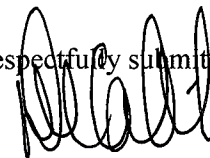
The Natural Area reserves System Commission approved the continued closure at its April 6, 2016 meeting and recommended that the Board of Land and Natural Resources approve the proposed closure extension of up to two years of access restriction to portions of 'Āhihi-Kina'u Natural Area Reserve, Maui, from August 1, 2016 through July 31, 2018. The date of the renewed closure will be determined by the Board of Land and Natural Resources. The Division is enacting temporary closures during the interim period while the Commission and Board review this proposal.

The most popular and easily accessed portions of the Reserve would continue to remain open for public use during current visiting hours (5:30 a.m. – 7:30 p.m.) as they have for the previous two years, but other more remote and sensitive areas would continue to remain closed to the general public for reasons cited above.

RECOMMENDATION:

That the Commission recommend to the Board of Land and Natural Resources approval to restrict access to portions of the 'Āhihi-Kina'u Natural Area Reserve, Maui, for a period of up to two years, pursuant to Hawaii Administrative Rules § 13.209-4.5, Tax Map Keys: 2-1-004:073 (portion) and 2-1-004:113.

Respectfully submitted,



DAVID G. SMITH, Administrator

Attachments: Maps

**AHIHI-KINAU
NATURAL AREA RESERVE**

NOTICE
Areas Closed

Public access to portions of
Ahihi-Kinau Natural Area Reserve
has been restricted to address
impacts occurring to the resource:

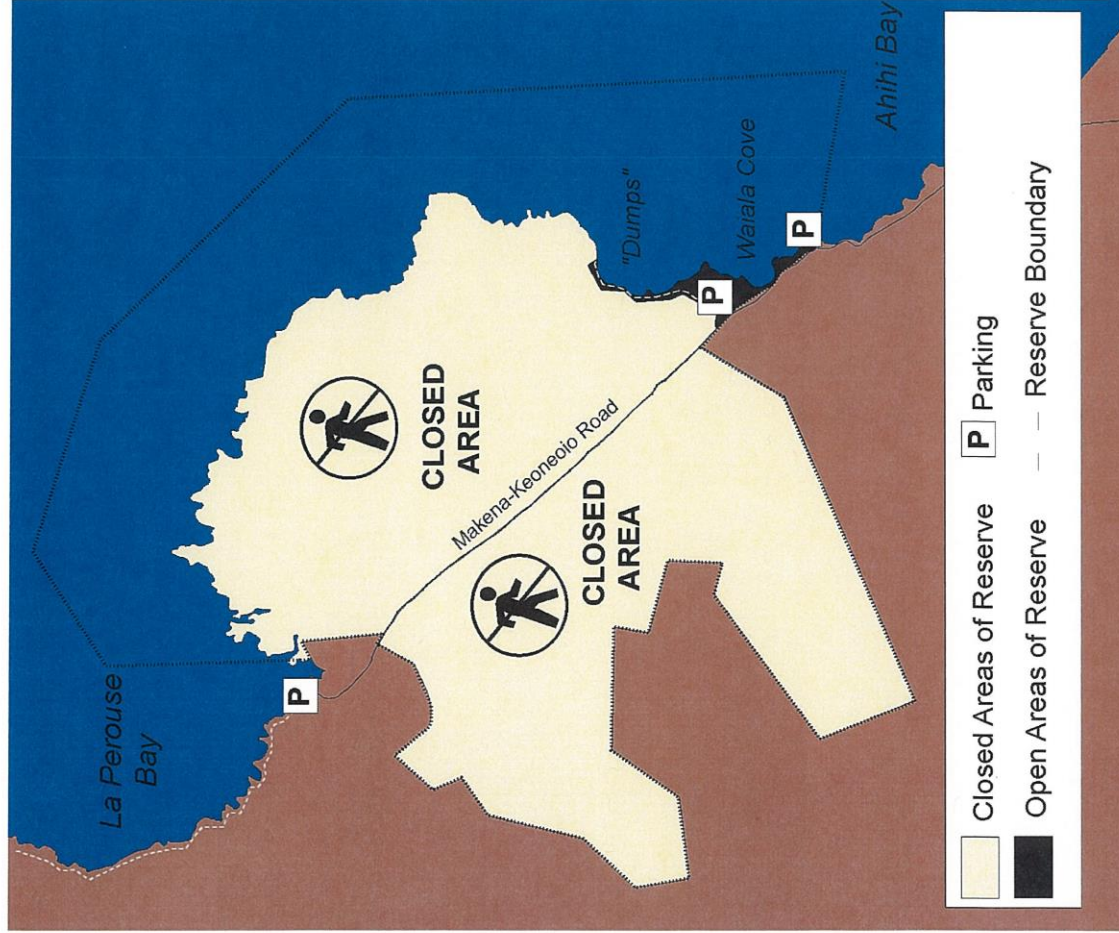
**Please *Kokua* and
do not enter closed areas.**

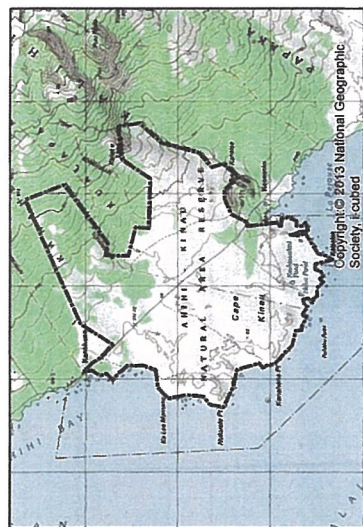
HRS §13-209-4(16) If present in closed area,
violators may be cited and/or arrested.

Convictions shall result in a misdemeanor
and fines up to \$1,000 and/or up to a year in jail.

STATE OF HAWAII - DLNR

DIVISION OF FORESTRY AND WILDLIFE (984-8101)





Legend

- Impact Craters with MD observed during the 2008 SI survey
- MD discovered during 2008 SI survey
- MEC discovered during 2008 SI survey
- ▲ No MEC Detected During Current RI survey
- ▲ MD observed during the current RI survey
- Remedial Investigation Transects
- Area of Concern
- Anchialine pond



Area of Concern

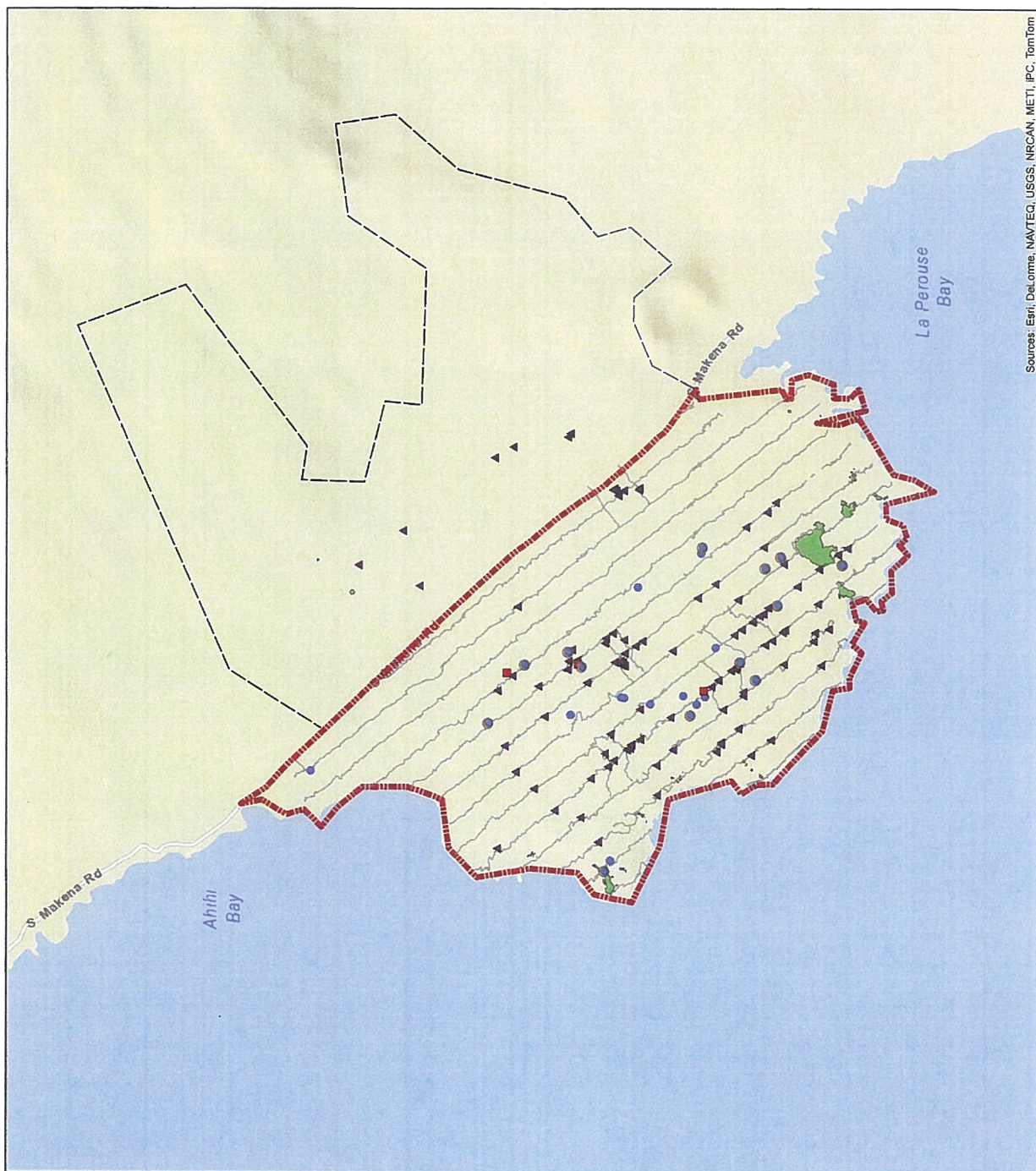
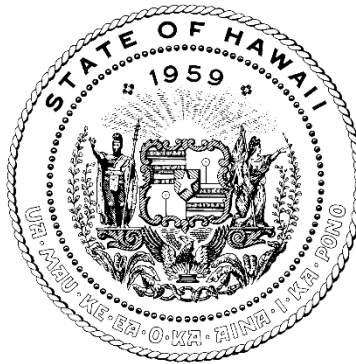


Figure 7-1

Sources: Esri, DeLorme, NAVTEQ, USGS, NRCAN, METI, IPC, TomTom
A-16

**REPORT TO THE THIRTIETH LEGISLATURE
STATE OF HAWAI‘I
2019 REGULAR SESSION**

**RELATING TO THE NATURAL AREA RESERVES SYSTEM,
NATURAL AREA PARTNERSHIP PROGRAM, AND
THE FINANCIAL CONDITION OF THE
NATURAL AREA RESERVE FUND**



Prepared by

**THE STATE OF HAWAI‘I
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE**






In Response to Section 195-6.6, Hawai‘i Revised Statutes

Honolulu, Hawai‘i
November 2018

**REPORT TO THE THIRTIETH LEGISLATURE
2019 REGULAR SESSION
RELATING TO THE NATURAL AREA RESERVES SYSTEM,
NATURAL AREA PARTNERSHIP PROGRAM, AND
THE FINANCIAL CONDITION OF THE
NATURAL AREA RESERVE FUND**

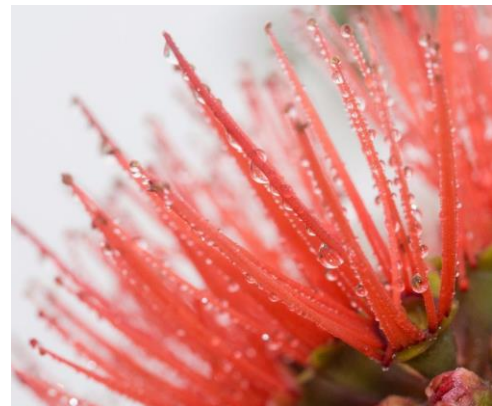
Section 195-6.6, Hawai‘i Revised Statutes (HRS), requires the Department of Land and Natural Resources (Department) to prepare an annual comprehensive status report on the Natural Area Reserves System (NARS), the Natural Area Partnership Program (NAPP) and the financial condition of the Natural Area Reserve Fund (NARF). This report also covers other programs within LNR 407 and a portion of 402, including the Watershed Partnership Program, Hawai‘i Invertebrate Program, Rare Plant Program, and the Information and Education Program.

FY 18 Accomplishments at a glance:

				
\$6.89m	56,746	76,200	15,151	22,553
Federal, County, and private funds leveraged	Trees and shrubs planted	Hours of youth intern service contributed	Acres of invasive plant control	Volunteer hours donated

Sustainable Hawai‘i Initiative: 30x30 Watershed Protection Goal

Hawaii’s forests have lasted millions of years on these dynamic islands, but now face growing threats to their future. Straightforward, attainable steps exist to protect them, like fencing out hooved animals, removing noxious weeds, and preventing fires. These actions keep forests healthy so they can withstand long term climate changes or episodic threats like Rapid 'Ōhi'a Death (ROD). Indeed, preliminary studies are finding significantly fewer dead 'Ōhi'a trees in areas fenced from hooved animals in ROD hotspots on Hawai‘i island.



A central sustainability goal for the State is to protect 30% of priority watershed forests by 2030. To reach the goal of 30% (253,000 acres), the Department will need an average of \$5 million per year in capital improvement project funding to build approximately 202 miles of fence. Currently, 17% of priority forests are protected, and the Department needs additional capital improvement project funding to stay on track. Protecting native forests is a critical tool for adapting to climate change’s drying effects, and will make Hawai‘i more resilient in extreme weather events by reducing drought, landslides, flooding, and runoff.

Rapid 'Ōhi'a Death Resilience:
Removing hooved animals makes forests more resilient to diseases and better able to recover.

FY18 Island Highlights



Hawai'i: Finished the largest dryland forest project in the State that protects over 26,000 acres at Manuka, Ka'u!



Maui: The Hōkule'a crew and students visited Pu'u Kuku'i Preserve to plant 4,000 koa trees and thousands of other natives.



Moloka'i: Record numbers of wedge-tailed shearwater nests - 1,385 - at Mo'omomi, due to the predator proof fence.



Lāna'i: Located critically endangered populations of native snail *Partulina variabilis* - one of many exciting snail discoveries in FY18.



O'ahu: Found new populations of Wahine noho kula – a plant not seen on O'ahu since the 1800s and only surviving on vertical cliffs.



Kaua'i: Provided multiple trips to teach Kawaikini charter students about invasive plant removal, planting, and other biology lessons.

1. Programs

The main activities of the programs supported by LNR 407 are: fencing and control of hooved animals such as cattle, sheep, deer and pigs; control of other invasive species (weeds, non-native predators); reforestation; rare plant and wildlife monitoring, propagation, and reintroduction; fire prevention and suppression; maintenance of infrastructure; and public outreach. These programs also provide emergency response by responding to wildfires and natural disasters like the Kīlauea eruption, and maintaining roads, shelters, signs, and helipads.

Natural Area Reserves: State lands that preserve in perpetuity specific land and water areas which support communities, as relatively unmodified as possible, of the natural flora and fauna, as well as geological sites, of Hawai‘i.

Watershed Partnerships: Voluntary alliances of public and private landowners committed to protecting over 2 million acres of the most important watershed lands in Hawai‘i. Organizations and agencies compete for funding, and State funds leverage Federal, County, and private monies on a 1:1 basis, doubling the impact of the State’s investment.



Ko‘olau Mountains Watershed Partnership building fence mauka of Wahiawā, O‘ahu.

Natural Area Partnerships: Private lands permanently dedicated to conservation. State funds are matched with private funds, providing long-term protection, financial support and management to protect, restore and enhance unique natural resources.

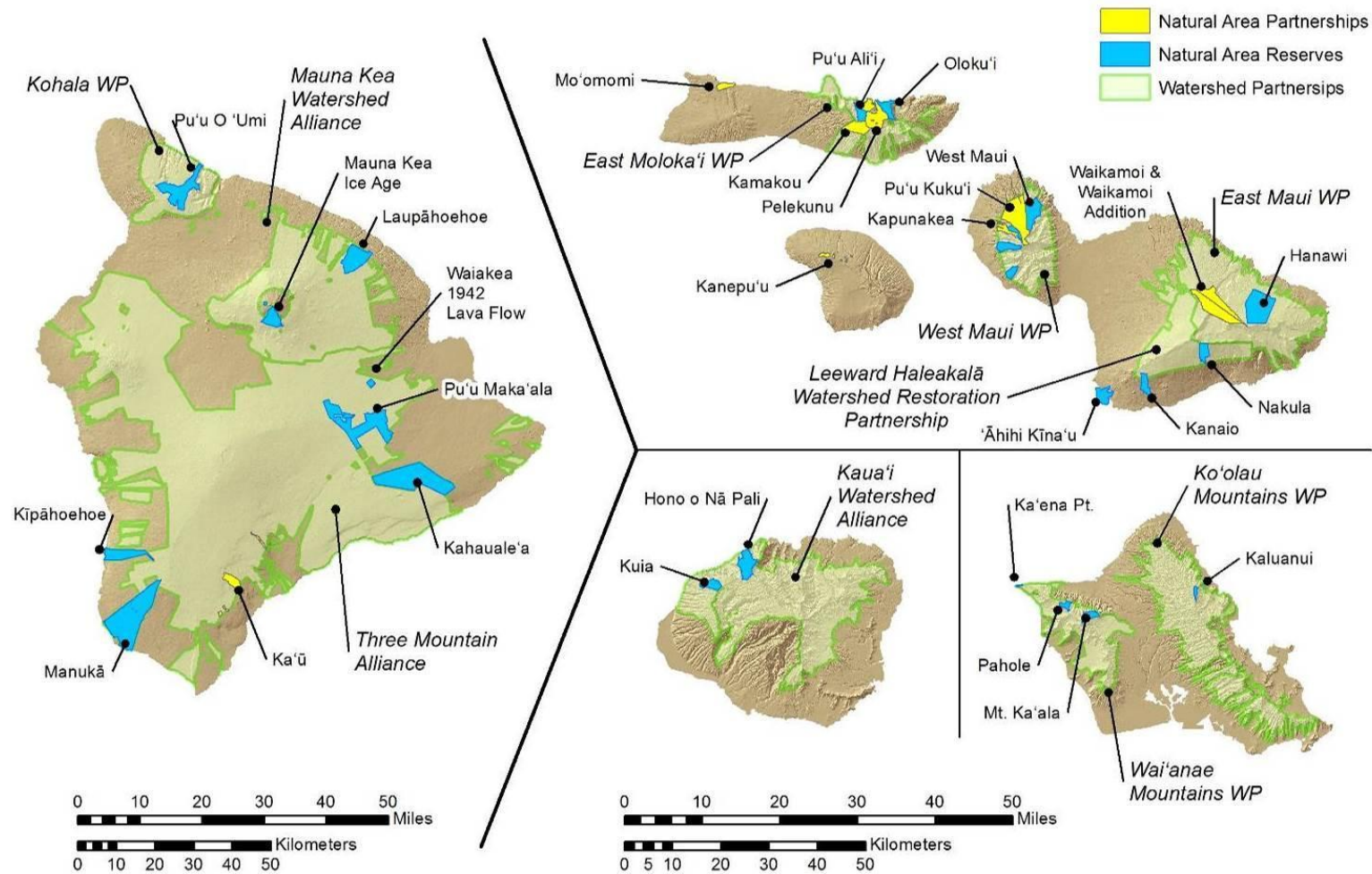
Rare Plant Program: Perpetuates the native flora of Hawai‘i. In FY 18, State funds were matched 3:1 by Federal dollars. This program includes nurseries and seed storage facilities to prevent extinction by propagating and storing plants for reintroduction into protected habitats. The Program also includes the Plant Extinction Prevention Program that protects the 237 species that number fewer than 50 individuals remaining in the wild.

Hawai‘i Invertebrate Program: Directs resource management, monitoring, research, conservation, and policy relating to rare and Federally listed threatened and endangered native invertebrate species. In FY 18, State funds were matched 5:1 by Federal and private funds. This year, HIP got a National Recovery Champion Award from the US Fish and Wildlife Service for excellence in conservation. This program includes the Snail Extinction Prevention Program, a partnership with the U.S. Fish and Wildlife Service to prevent the extinction of rare Hawaiian land snail species, and preserve the ecosystems upon which they depend.

Information and Education Program: Connects with communities through press releases, community events, presentations, websites, social media, field trips, classroom visits, volunteer trips, educator workshops, and Youth Conservation Corps internships. The Youth Conservation Corps Program enables young adults to gain entry-level experience as they work with natural resource professionals. The program mentored 42 year-round interns in addition to 15 weeks of project service learning for summer teams, providing approximately 76,200 hours of service.

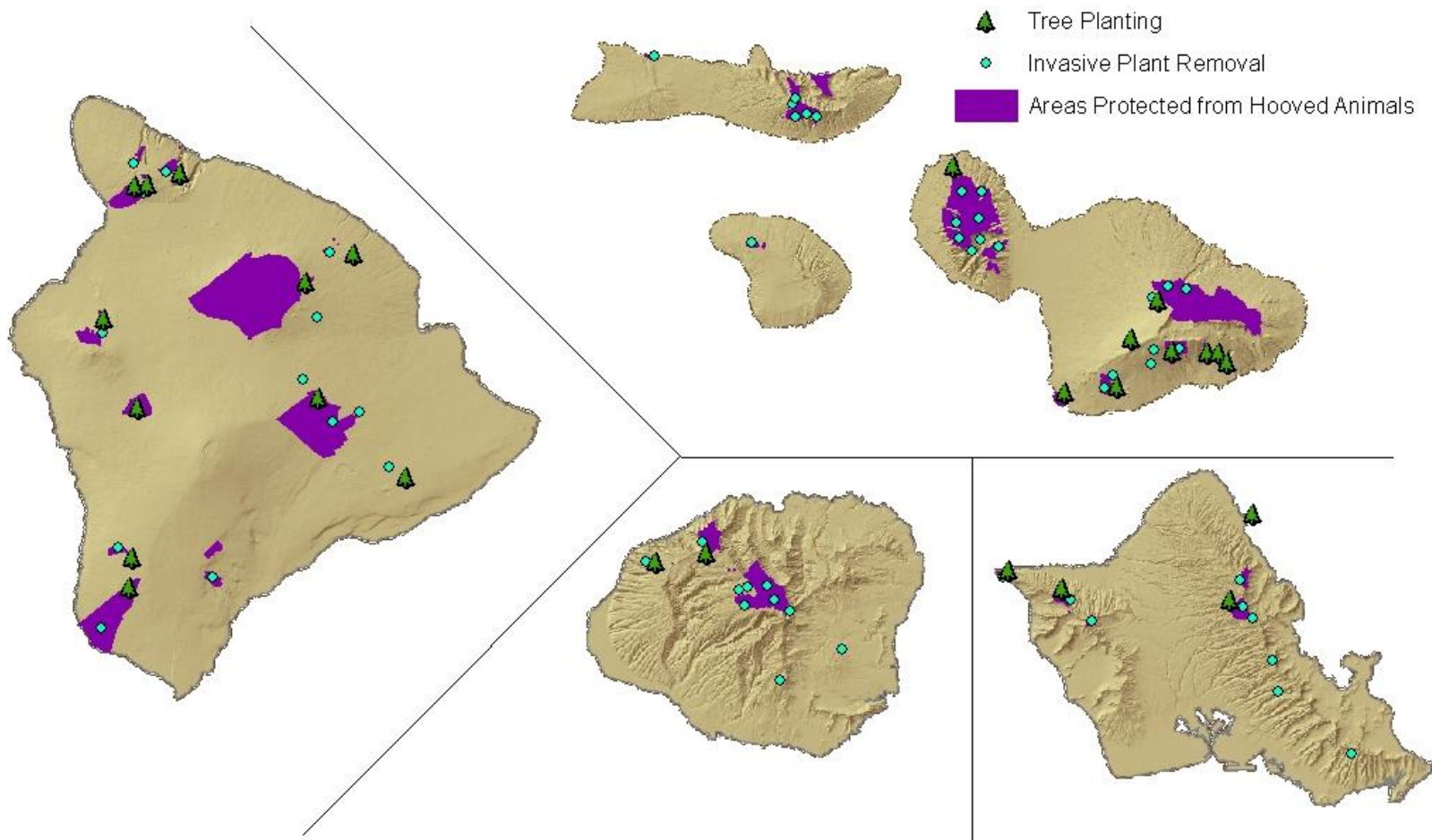


Natural Area Reserves, Natural Area Partnerships, and Watershed Partnerships



Locations of project sites detailed in this report. WP: Watershed Partnership

FY18 Accomplishment Locations



Locations approximate. DOFAW (808) 587-4170. August 2018.

Fence construction in the Mauna Kea unit is not complete; incremental construction supports ongoing hooved animal removal.

Not shown in map are rare plant, snail, invertebrate, and outreach project sites.

FY 18 Accomplishments		Prog.	Invasive plants search & control	Protected from hooved animals	Planting common and T&E species	Volunteer Contributions	Fence (new constructed)	Fence (maintained)
Location			Acres	Acres	Number	Hours	Miles	Miles
Kaua'i	Hono O Nā Pali	NAR	46	-	63	2,000	0.57	3.37
	Kuia	NAR	70	127	1,093	313	-	4.10
	Līhue Kōloa Forest Reserve	NAR	-	17	-	-	-	0.12
	Kauai Invasive Species Comm.	WP	554	-	-	-	-	-
	Kaua'i Watershed Alliance	WP	271	6,571	-	-	-	14.20
O'ahu	Pahole	NAR	8	650	1,610	1,207	-	7.00
	Ka'ena Point	NAR	5	65	140	629	-	0.40
	Mt. Ka'ala	NAR	6	51	-	231	0.30	3.00
	Poamoho (Ewa Forest Reserve)	NAR	151	1,300	56	-	-	8.00
	Kaluanui	NAR	5	540	-	-	-	4.00
	Various other locations	NAR	1	-	1,199	-	-	-
	O'ahu Invasive Species Comm.	WP	1,022	-	-	-	-	-
	Ko'olau Mountains	WP	409	2,187	-	2,131	0.37	28.53
Maui, Moloka'i, and Lana'i	‘Āhihi-Kīna‘u	NAR	20	626	358	154	-	4.40
	Hanawī	NAR	-	6,411	-	-	-	14.30
	Nakula	NAR	300	1,500	15,792	40	-	8.90
	Kanaio	NAR	244	1,450	90	-	-	7.60
	West Maui	NAR	-	5,461	-	-	-	3.60
	Pu'u Ali'i & Oloku'i	NAR	-	2,950	-	-	-	6.60
	West Maui Mountains	WP	45	8,963	-	443	-	4.30
	Leeward Haleakalā Restoration	WP	2,153	1,238	22,825		1.15	13.85
	East Maui	WP	245	7,201	-	340	-	6.42
	East Moloka'i	WP	497	3,290	-	1,825	0.70	15.00
	Kamakou	NAP	165	7,736	-	233	-	1.30
	Mo'omomi	NAP	28	175	-	834	-	3.70
	Pelekunu	NAP	11	11,900	-	68	-	-
	Pu'u Kukui	NAP	230	8,824	1,724	8,082	-	7.00
	Waikamoi & Addition	NAP	236	6,923	20	889	0	14.20
	Kapunakea	NAP	50	1,232	-	100	0	6.00
	Kānepu'u	NAP	25	346	-	1,353	0	8.10

(Continued from previous page)

FY 18 Accomplishments		Prog.	Invasive plants search & control	Protected from hooved animals	Planting common and T&E species	Volunteer Contributions	Fence (new constructed)	Fence (maintained)
Hawai'i	Mauna Kea Ice Age	NAR	-	3,894	-	160	-	0.81
	Pu'u O 'Umi	NAR	168	2,422	265	40	1.61	13.08
	Laupāhoehoe	NAR	13	17	157	-	-	1.12
	Kahauale'a	NAR	6	154	51	-	-	2.76
	Kīpāhoehoe	NAR	96	1,331	1,125	120	-	9.17
	Pu'u Maka'ala	NAR	80	13,213	7,734	-	2.42	57.3
	Manukā	NAR	6,501	26,638	337	24	-	29.46
	Pu'u Wa'awa'a Sanctuary	NAR	211	3,749	2,127	-	-	18.97
	Koai'a Corridor Sanctuary	NAR	222	222	-	8	-	2.9
	Various other locations	NAR	-	36	-	-	4.8	1.55
	Three Mountain Alliance	WP	1,116	31,383	-	-	-	35
	Kohala	WP	49	1,508	-	2,998	-	16
	Mauna Kea Watershed Alliance	WP	203	1,625	-	-	-	27.6
	Ka'ū	NAP	522	2,000	-	673	-	8.6
TOTAL			15,151	175,926	56,746	22,553	12	408

Acronyms: T&E: Threatened and Endangered. NAR: Natural Area Reserve. NAP: Natural Area Partnership. WP: Watershed Partnership.

Acres protected from hooved animals include both areas within the watershed priority areas that are in wet and mesic climates, as well as ecosystems important for other reasons, such as native dryland forests.

Locating a wawae'iole plant (Huperzia nutans), one of only eight individual plants known to exist in the world. Northern Ko'olau mountains, O'ahu.



Additional statewide accomplishments include:

Hawaiian Mid-Elevation Rare Plant Facilities:

- Hawaii's four mid-elevation nurseries provided 9,801 native plants for rare plant and wildlife habitat restoration projects on State and Watershed Partnership lands.

Plant Extinction Prevention Program:

- In the last year, the Plant Extinction Prevention Program (PEPP), protected 210 Threatened and Endangered plant species, a 16% increase from last year.
- Surveys in remote areas found several new populations of critically rare plants. Now, collections are being grown and replicated in State nurseries to be eventually returned to protected areas.
- PEPP staff out-planted 3,267 plants of 39 target species to create new populations in protected habitat on Kaua'i, O'ahu, Moloka'i, Maui, and Hawai'i Island. These new populations greatly reduce the extinction risk for these native plants.
- Together with its partners, the PEPP has effectively halted plant extinctions in Hawai'i since its inception in 2003. In the decade before this partnership began, Hawai'i had been experiencing approximately one plant extinction per year.



The Mauna Kea Silversword is part of an iconic group of plants found only in Hawai'i. It is one of 424 plants listed as Threatened or Endangered by the U.S. Fish and Wildlife Service and the State of Hawai'i.

Hawai'i Invertebrate Program (HIP):

- HIP staff continue efforts to propagate and release our State insect, the Kamehameha butterfly, back into areas of O'ahu where it has disappeared. The project aims to conserve species diversity and ecosystem function in priority watershed forests, as well as increase public awareness and restore habitat for the species across communities. A total of 3,070 Kamehameha butterflies were released, and 300 māmakī plants out-planted.
- Thanks to a new partnership with the City and County, native Hawaiian invertebrates are now being exhibited in the Honolulu Zoo Ectotherm Complex. HIP has provided the Zoo with rare insect and snail species and trained staff on captive propagation techniques. In return, the Zoo is educating Hawaii's families and youth about our unique invertebrates, the threats they face, and the importance of conserving them.
- HIP has received competitive federal grants to continue work on additional rare and endangered species, including the orange-black damselfly, yellow-faced bees, Blackburn's sphinx moth, Kaua'i stag beetle and the Kaua'i green sphinx moth.

Snail Extinction Prevention Program (SEPP):

- In the last year SEPP has continued to manage approximately 50 species of rare and endangered snails, all on the very brink of extinction. Management activities include invasive predator control, habitat enhancement, construction and maintenance of predator-proof fencing, translocation, captive propagation and reintroduction.
- SEPP has expanded captive propagation efforts to aid in recovery of rare and endangered snail species. Currently, 24 species from five islands are being actively reared for reintroduction back into the wild.
- SEPP received funding from the United States Fish and Wildlife Service to construct a predator-proof fence in the Ko‘olau Mountains.



Thought to be long extinct, Laminella venusta was recently rediscovered in the Pu‘u Ali‘i NAR in Moloka‘i. The SEPP captive rearing lab has grown a thriving population which will be reintroduced back into the wild.

2. STATUS OF PUBLIC HUNTING OPPORTUNITIES

Under Natural Area Reserves System (NARS) Management Policies, strategies to reduce populations of non-native animals to the lowest possible level are to be employed. Public hunting continues to be a control option in many areas within NARS, with most lands now open to hunting every day with no bag limit. Staff animal control (including fencing, trapping, staff hunting, snaring, and aerial shooting) are used as needed in specified areas where public hunting is not able to reduce hooved animal impacts to low levels. Staff continues to work with hunting organizations and others to find ways that the animal control goals of the program can provide opportunities for the hunting community.

In Natural Area Partnership Preserves on private land, the public hunting opportunities vary:

- Kamakou and Pu‘u Kukui Preserves are open for public hunting 365 days/year, with no bag limit. During extreme fire hazard or unsafe road conditions, all or portions of the Preserve may be closed. Kanepu‘u and Ka‘ū Preserves also have volunteer hunt programs.
- Waikamoi Preserve’s conservation easement allows ranch employees to hunt. Public hunters are permitted to hunt in portions of the Preserve when it does not interfere with management, guided hikes, and ranch employee hunting.
- Kapunakea Preserve’s conservation easement requires that there be no unaccompanied public hunting. The Preserve is closed to hunting with dogs due to snaring.
- Mo‘omomi Preserve does not have public hunting due to safety concerns and limited resources for administration and enforcement.

3. ANALYSIS OF THE PROBLEMS AND ISSUES ENCOUNTERED

These programs are highly reliant on steady sources of funding. Even a single year of budget cuts can undo decades of progress if fences and firebreaks are not maintained, invasive weeds are allowed to spread, etc. Budget cuts can even result in extinction of native Hawaiian species, which rely on active and sustained management. Many of these programs rely primarily on

Federal funding and are anticipating significant cuts with the proposed President's budget. To prevent extinctions and major losses to the programs, State funding will need to be maintained or increase.

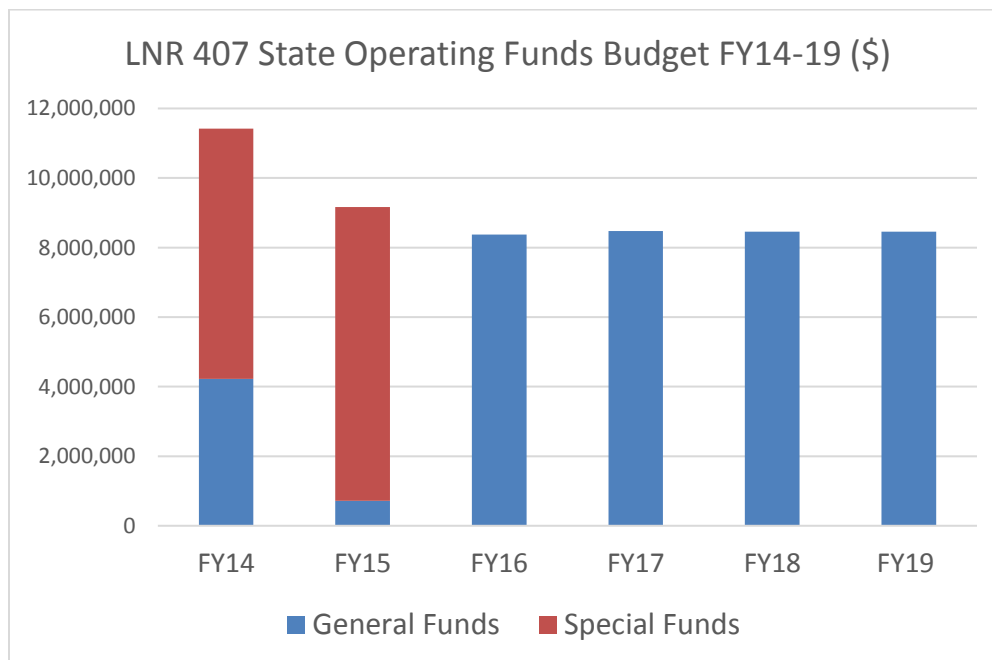
Establishing civil service staff positions is often more cost-effective and high-quality than contracted labor. The specialized conservation work requires extensive training in wilderness safety and knowledge of remote landscapes and plants and wildlife. DOFAW would like to reduce reliance on contracted work, by establishing civil service positions, saving State overhead costs and decreasing disruptive turnover rates.

4. FINANCIAL CONDITION OF THE NATURAL AREA RESERVE FUND (NARF)

Since FY 16, the NARF's spending ceiling and conveyance tax funding source have been eliminated and replaced by general funds, pursuant to Act 84, SLH 2015. However, the Department will begin to raise revenues into the NARF through parking fees at 'Ahihi Kina'ū NAR. Assessing a fee was justified by the management plan as a way to collect revenues to support management of the NARS. The spending ceiling will need to be increased to enable the Department to use those parking fee revenues.



*Extensive training in specialized skills, such as rappelling, is needed for conservation work. Retaining these trained staff through long-term civil service jobs greatly improves efficiency. Here, a botanist is finding the last known O'ahu population of wahine noho kula (*Isodendron pyriform*). This plant only grows on steep cliffs where goats cannot climb.*



This figure does not include funding specifically allocated for the 2016 IUCN World Conservation Congress (\$100,000 general funds and \$3.9m special funds in FY 15).

5. CONCLUSION

Detailed project plans and accomplishment reports are available at <http://dlnr.hawaii.gov/ecosystems> or from the Department/DOFAW Native Ecosystem Section Manager at Emma.Yuen@hawaii.gov or (808) 587-4170.

Notes:

This legislative report does not contain a section on the compliance with Chapter 42F, HRS, since Chapter 42F, HRS, is no longer applicable to the types of grants issued under NAPP.

Due to the time required for contracting, this report summarizes Watershed Partnership activities that were carried out using FY16 funds, which largely occurred during FY 17. This report includes only actions funded by the State Watershed Partnerships Program Grants; additional partnership work is funded by federal, county and private funds.



Building fence at Poamoho in the Ko'olau Mountains, O'ahu.



Guest speakers joined hundreds of community members to plant trees in the Pu'u Kukui Preserve region in August 2017, celebrating the arrival of the Hōkule'a into Honolulu Bay. Pictured: Nainoa Thompson of the Polynesian Voyaging Society speaking with Pōmaika'i Kaniaupio-Crozier, manager of the Pu'u Kukui Preserve, Maui.