

February 21, 2015

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Comments to be considered in preparation of an Environmental Impact statement
for:

Project Name: Hawai'i Dairy Farms
Island: Kaua'i
District: Poipu
TMK: (4) 2-9-003:001 (portion); 006 (portion)
(4) 2-9-001:001 (portion)

To whom it may concern,

The following is my response and comment to the Hawaii Dairy Farms EISPN,
posted on January 23rd, 2015. Each of the comments below need to be included
and fully addressed by the Hawaii Dairy Farm EIS due to the substantial adverse
environmental impact likely to be sustained if an Industrial Dairy is allowed to
operate at Maha'ulepu on Kaua'i:

As all wildlife has what is known as a 'tolerance range,' once that range is exceeded the wildlife and threatened and endangered species may leave an area or die. Those amphibians that can't leave will die. For this reason each rare or endangered species, necessary habitat, mating behaviors, sensitivity to sound, sensitivity to methane gas, hydrogen sulfide, acid rain, and sensitivity light & glare, needs to be addressed in the EIS on an individual, per species, basis. The cumulative effect of all of these sensitivities on their survival as well as their potential inability to increase their numbers needs to be addressed. The necessary environment required to enhance the livability of our Federally threatened endangered species must be addressed in the EIS.

Specific Endangered birds

The native and endemic endangered birds known in the Maha'ulepu area are the Hawaiian Coot ('alae ki'oke'o), Common Moorhen ('alae'ula), Hawaiian Duck (Koloa), Hawaiian stilt (ae'o) and Hawaiian goose (nene). The impacts to each of these endangered birds need to be addressed separately in the EIS as each has its own nesting habits, food sources and environmental requirements .

Wetlands and Endangered birds

The Intermittent streams and wetlands at Maha'ulepu and Kipu Kai provide habitat for these endangered birds. The placement of a cow burial site near the edge of the HDF's property just adjacent to, and upland from, a known wetland needs to be addressed especially in light of the hydrologic interconnection of the valley, according to the Maha'ulepu, Island of Kaua'i Reconnaissance Survey (completed by the National Park Service, U.S. Dept. of the interior in 2008) on page 29. The 600+ dead cows that HDF needs to dispose of per year is an environmental threat to the wetlands and the endangered birds that live or frequent there. (Dead cow tally on record at the county council meeting in May 2014.) This significant adverse impact needs to be addressed in the EIS. The specifics of the method used and the value judgments made need to be disclosed by HDF to enable proper review of significant adverse impacts that may occur. Any manure or urine left on the paddocks that are upland of wetlands needs to be addressed in the EIS because of the possibility of runoff contaminating the wetlands with total nitrogen, ammonium nitrogen, nitrate and nitrite phosphorous, Enterococcus and hormones.

Waterbirds

Along the Māhā'ulepū watershed coastline, other small wetland ecosystems fed by rain and groundwater lie just inland of the dunes. These, too, attract native waterfowl; biologists believe they once supported larger populations, and have excellent restoration potential. Resource specialists told NPS that Māhā'ulepū and Kīpū Kai, in combination with Hulē'ia, provide a much-needed mosaic of varied wetland habitats that should to be reliably available for endangered Hawaiian waterbirds. (MIKRS) All wetlands small and large need to be individually identified in the EIS. Protection of these wetlands or potential wetlands needs to be addressed in the EIS. The specifics of the method used and the value judgments made need to be disclosed by HDF to enable proper review of significant adverse impacts that may occur.

Taro Patch and rain event

“According to a state source, nēnē, koloa and other waterfowl frequent the taro lease land in Māhā'ulepū valley, and a broad natural depression in the valley that fills with water after heavy rain draws many waterbirds. Sixty Koloa individuals were counted during one such event (Kaiakapu 2007).” (Page 19 MIKRS) The exact area of the “broad natural depression” needs to be determined and protected for the wild birds. The area of the depression needs to be established with the necessary fauna and flora to provide the bird's habitat. If the depression area has been disturbed by the grubbing and grading that occurred in 2014 by HDF, it needs to be restored. The specifics of the restoration need to be spelled out in the EIS. If the depression area is still viable then the area needs to be protected for the wild birds and named in the EIS. Any potential significant adverse impacts from dairy operation such as grazing, irrigation, herd movement, etc., must be addressed in the EIS. Additionally protection measures taken must be elucidated in the EIS.

Newell's Shearwater

Newell's Shearwater, a threatened native bird species, and nests on Ha'upu ridge, just above the dairy site (USFWS Recovery Plan for Newell's Shearwater). The fledglings leave their nests on Ha'upu ridge and fly towards the ocean directly over HDF's facilities. “Kauai is home to 90% of the total population of Shearwaters” (The bird that Darkened Kauai” by Coco Zickos).

“Transitioning to bird-friendly lighting at all county facilities has been one of our priorities, so we’ve budgeted for the retrofits for several years,” Mayor Bernard Carvalho Jr. wrote in an email. “The new lights, Rapozo said, will be available seven days a week from 6 to 10 p.m. during ‘non-fledgling season’ — dates outside of the Shearwaters’ fledgling season, which runs from Sept. 15 to Dec. 15. The systems at each facility include a push button to turn the lights on for an hour at a time and an alert system at the end of each hour that will warn users that the button needs to be pushed again for additional use. If the button is not pressed, the lights will turn off, which could save the county money on its electricity bill” (The Garden Island January 29th, 2015).

“The upgrades were one of the steps taken by the county to comply with a 2010 Justice Department plea agreement in which the county and Kauai Island Utility Cooperative admitted to violating the Migratory Bird Treaty Act. The charges, at the time, blamed the deaths of Newell’s shearwaters on the lighting policies at county facilities. Officials said seabird fledglings can become confused by stray light during their first nocturnal flight from their nesting burrow to the sea. Some of these birds end up falling inland, where they can become prey for predators” (The Garden Island January 29th, 2015).

The Waste Management Plan for HDF submitted to the DOH states, “Rotary Milking System of 60 clusters that provides for a throughput of 360 cows every hour and allows for a maximum milking time of 6 hours approximately per milking and 12 hours per day.” To accomplish milking the herd it will take approximately 12 hours. Additional time will be needed for cleaning out the facility and directing the waste to the effluent ponds, maintenance of equipment, to convey feed from 2 large silos to disc mill, and to take processed feed from mill to 904 feed system silo then to convey the feed to the feed shed. Additional time will be needed for delivery of grains to facility and maintenance of the feed system. These and many other processes will take beyond 12 hours per day. In fact, HDF at their public meeting in Lihue at KCC, on March 27th, 2014, stated that the milking would begin at 4am and go until 10am then start again at 4 pm, going until 10 pm. The issue here becomes many of these processes needing to be done at night and the lighting that would be needed. This will interfere with the migration of the shearwater fledglings to the ocean. The Migratory Bird Act comes into play here. The county stopped all games at the stadiums at night to comply. How will HDF comply when in fact there isn’t enough daylight to run their operations? This

needs to be addressed in the EIS. The specifics of the method used and the value judgments made need to be disclosed by HDF to enable proper review of significant adverse impacts that may occur.

Migratory Birds

“Four migratory bird species that winter in Hawai‘i and return to the Arctic to breed were noted in the study area.” The Pacific Golden Plover, Ruddy Turnstone, Wandering Tattler and the Sanderling (MIKRS). There are additional migratory shorebirds that frequent the coastline occasionally, and other seabird species likely transit the coast. A State study notes that seabirds use the coastal sea cliffs and foothills for nesting and loafing (OSP 1992). The environmental requirements of these migratory birds need to be addressed in the EIS as well as the impact of the dairy’s runoff, grey water, and predatory animals attracted by the dairy operation and the waste produced. The presence of rats and egrets, known to consume bird eggs, need to be addressed. Rats are currently having a substantial impact on the bird population in Koke‘e. The State is also presently addressing a major rat infestation in Lehua, the Island adjacent to Ni‘ihau. Steps to protect these birds from all adverse externalities need to be addressed in the EIS.

The cattle egret may consume the young of endemic waterbirds (USFWS 2005) and compete with native waterbirds for food (Hawaii Audubon Society 2005). The number of egrets attracted by 2,000 cows needs to be addressed in the EIS. Protection of food sources for waterbirds needs to be addressed in the EIS.

Native Species

Five native species are known to frequent the area: the Black Crowned Night Heron, White Tailed Tropicbird, Great Frigate bird, Wedge Tailed Shearwater, and Red Tailed Tropicbird. The Black Crowned Night Heron finds breeding habitat at Hulē‘ia NWR and was spotted during the survey. Biologists describe Frigate bird sightings at Māhā‘ulepū and on Mt. Hā‘upu. (MIKRS) These birds, their special needs and what methods will ensure their survival need to be elucidated in the EIS.

Terrestrial Invertebrates

Two notable and extremely rare terrestrial invertebrates live in the Maha‘ulepū area: the Kaua‘i Cave Wolf Spider (*Adelocosa anops*) and the Kaua‘i Cave

Amphipod (*Spelaeorchestia Hanamā'uluna*). In 2000, both the spider and the amphipod were Federally Listed by USFWS as endangered species. All known populations occur in the Kōloa basin on Kaua'i, within a 4-square-mile area (CBD 2007). Both species have been reduced to a few small populations; exact numbers remain unknown. Researchers say the spider is seen regularly in only one cave with a population of 16 to 28 individuals (USFWS 2005). The cave-laced corridor along the Māhā'ulepū coast of the study area, from Makawehi Point to Kawelikoia Point, is designated by USFWS as Critical Habitat for both of these endangered species. How is HDF going to protect their Critical Habitat from a deluge of manure laced water coming down the Waipili Stream and flooding the cave and vicinity during a rain event, tropical storm, or Hurricane? The cave floods from the rising waters of the Waiopili approximately every four years. This issue needs to be thoroughly addressed especially in light of the fact that Maha'ulepu Valley is hydrologically connected to the cave. (MIKRS)

The Marine Vertebrates

The beaches and near shore waters are home to three important large marine vertebrates: the endangered Hawaiian Monk Seal, known in Hawaiian as 'Īlio holo ika uaua (*Monachus schauinslandi*), the endangered Humpback Whale or kohala (*Megapteranovaeangliae*), and the threatened Green Sea Turtle or honu (*Chelonia mydas*).

Successful Monk Seal puppings occurred at Maha'ulepu in 2000 and 2007 (MIKRS). Monk seal occurrences within the study area take on increasing significance as the overall population continues declining at about 4 percent each year. The updated Recovery Plan for the Hawaiian Monk Seal, released in August 2007, states that the species "is headed to extinction if urgent action is not taken." Its recovery strategy calls for actions to ensure continued growth of the Seal population in the main Hawaiian Islands (NOAA 2007b). Fast forward to February 2015, The Garden Island Newspaper states, "The Marine Conservation Institute is calling for the National Oceanic and Atmospheric Administration to 'redouble its efforts' to conserve and recover the endangered Hawaiian Monk Seal. 'Although NOAA's field staff has made progress on some fronts to protect and save the lives of individual seals, we think NOAA can — and must — do more to slow down and eventually reverse the decline,' MCI's Conservation Advisor William Chandler said during a teleconference Thursday. Despite continued efforts, the population of between 900 and 1,100 seals is declining at an annual

rate of 4 percent — a trend MCI estimates would halve the population in less than 20 years” The impact on Monk Seals due to rain events, tropical storms and hurricanes polluting the ocean via Waiopili stream with manure, urine, nitrogen, phosphorous, hormones and other fertilizers used by HDF needs to be address in the EIS.

Fish

The Reef Environmental Education Foundation recorded 24 species of fish at Kawailoa Bay (Māhā‘ulepū), and 43 species at Kīpū Kai. An additional eight appeared in records kept by proprietors at Kīpū Kai. Kaua‘i residents describe the near shore waters of the study area as a “prime fishing area.” Telltale pipes for holding fishing poles are embedded at favored sites along the shoreline. Fish abundance is also implied by the presence of monk seals—the seals feed on reef fish as well as octopus, lobster, and eel (MIKRS). The EIS needs to address how HDF will protect the fish species during rainy season, how the algae causing pollutants will be monitored and how the stream and ocean would be cleaned up. The EIS needs to address coral death caused by nutrients and algal blooms as coral is an intricate part of the environment. Climate change needs to be addressed in the EIS as the culminate effect of higher nitrogen and phosphorous levels in the waterways could cause faster algae blooms leading to rapid coral death.

Algae

“We saw no invasive or alien algae” (MIKRS). This is the condition of Maha‘ulepu waters now, but in New Zealand it’s a different story. ““Already choked with weeds and algae, waterways will get even worse as the dairy industry continues to boom,’ the Environment Commissioner says. Poor-water quality is caused by the run-off of nutrients from farm land, which breeds invasive weeds, slime and potentially toxic algal blooms” (Waterways will get worse – Commissioner, article in NZFarmer.co.nz 2013). Nutrients, urine, manure entering the waterways and groundwater from runoff is likely because of the low Ksat of the two major clay soil types found on HDF site (Custom Soil Resources Report for Island of Kauai 2014) (CSRRIK). These issues need to be elucidated in the EIS. The likelihood of contamination of seaweed that is collected for human consumption needs to be addressed in the EIS.

Wetlands

The portion of Māhā'ulepū watershed that lies within the study area stretches from the Hā'upu ridgeline southward through Māhā'ulepū valley and eastward to the coast. Agricultural operations began in the mid-1800's in Māhā'ulepū valley; its intermittent streams and wetlands were long ago modified for irrigation purposes. The landowner Grove Farm operates a water system that includes wells, ditches, tunnels and reservoirs. Māhā'ulepū Reservoir, at the back of the valley, is part of that system. Both it and the County-owned Pu'u Hi reservoir (at the very southern end of the study area) serve as important attractors for Hawai'i waterfowl.

A broad natural depression in the valley also fills with water after heavy rains and temporarily draws water birds in large numbers. Though Māhā'ulepū valley's streams and wetlands were modified, their remnants remain. These expand and become especially visible during wetter periods. The former Wai'ōpili Stream, largely subsumed by the ditch system within the cultivated area at Māhā'ulepū, emerges in more natural form near Makauwahi Cave at the south end of the study area, where it joins forces with a natural spring and a remnant of the once much larger Kapunakea Pond. This wetland juncture attracts waterbirds and serves as nursery habitat for native fish. It is linked hydrologically to the important Makauwahi Cave Reserve, a critical habitat for endangered arthropods that rely on seepage of nutrient-rich water (MIKRS).

Restoring and protection from cows, manure & urine polluted water of this large Wetland area needs to be addressed in the EIS. Protection of the two mentioned area reservoirs needs to be addressed in the EIS. Protection of the area around and in the broad natural depression needs to be addressed in the EIS.

Because all of Maha'ulepu valley is hydrologically linked to the Makauwahi Cave, any breaches of the effluent ponds have a likelihood of ending up in the cave from weather events, hurricanes, to tropical storms and flash flooding this needs to be addressed in the EIS. The feasibility and positive impacts to the environment of disconnecting the direct access of the irrigation ditches to the Waiopili stream and instead being processed as waste water prior to entering the stream needs to be addressed (Especially in light of the high bacteria counts and turbidity readings of the Waipili this last year- DOH & Surfrider).

We do not want the Waiopili stream to become like the New Zealand streams. "We also need to have a long-term vision about what sort of land use is appropriate according to the sensitivity of the receiving waters"(Waterways will get worse – Commissioner, article in NZFarmer.co.nz 2013). HDF's land use needs to be reconsidered in Maha'ulepu, an environmentally sensitive site, in the EIS.

Arthropods

Intensifying and adversely impacting land uses and activities poses current and potential threats to important natural and cultural resources within the study area. Kaua'i's endangered arthropods in the study area are especially vulnerable to impacts from quarrying and other activity on the marginal agricultural soils overlying their cave habitats. Grading, fill, and excavation result in disturbance, compaction or blockage of the subterranean cracks where these species find refuge during drought. Blocked areas break up the cave system into separate areas, isolating the already small populations and increasing their risk of extinction (MIKRS). The further endangering of the arthropods through grubbing and grading activities

Makauwahi Cave and Sinkhole

Makauwahi cave and sinkhole is equally important for the light it sheds on Hawai'i's human story. According to scientists working at the site, it contains "in a single stratigraphic sequence an encapsulated view of the full span of human occupation, including the millennia preceding human arrival, earliest human evidence, subsequent population increase and cultural change, European contact, and modern transformation" (Burney and Kikuchi 2006). Due to its neutral pH environment, Makauwahi's fossil and artifact finds are exceptionally well preserved. Its sinkhole walls surround an ordered column of sediment layers that tell a nearly unbroken tale of conditions on Kaua'i, from before the arrival of people through the changes wrought by a millennium of human activity. Researchers are piecing together new and detailed views of Kaua'i's past based on analysis of the Cave's sediments, combined with oral and archival sources (MIKRS). With the Cave's hydrological linking to the valley it would seem that cow urine would possibly change the pH of the water going into the Cave, thereby destroying all the perfectly preserved extinct life forms. The possibility of pH

change and the impacts thereof need to be addressed in the EIS. An active sand quarry excavation operates adjacent to Makauwahi cave and sinkhole—so close that one small cave opening in the west sinkhole wall rises diagonally only about 50 feet before it ends in a surface collapse at the edge of the quarry (Burney and Kikuchi2006). Heavy equipment in use at the quarry can sometimes be felt within the cave environment, causing fear of potential rockfall or collapse. A heiau on the quarry site has already suffered significant damage. A future quarry site farther north at ‘Āweoweo may potentially impact dune burials (MIKRS). The quarry on HDF’s site needs to be addressed in the EIS for possible burial site as well as artifacts.

Invasive Alien Plant Species

Non-Native species dominate parts of the study area, and threaten or encroach on significant resources on the shoreline, at Hulē‘ia, and on Hā‘upu ridge. Once established, some of these aliens are difficult to remove. Ungulate disturbance destroys native vegetation, increases erosion, and provides fertile ground for invasive species (MIKRS). Cows could cause ungulate disturbances thereby increasing soil erosion and giving invasive species a foothold at the expense of the native species. This needs to be addressed in the EIS.

Weather Hazards

Environmental events such as hurricanes, fires, tsunamis and landslides are potential study area threats that can not only wreak direct havoc, but also set into motion long-term landscape changes, such as erosion and alien plant invasion, that gradually degrade and destroy native habitats. State officials report that two hurricanes in recent decades damaged the Newell’s Shearwater habitat on Hā‘upu ridge, and allowed invasive species to spread across newly-eroded slopes. Kīpū Kai representatives say the mountainsides above their valley were lushly vegetated before the hurricanes. By the time of the National Park Service (NPS) site visit, the slopes were bare and roamed by goats, and a small recent landslide was apparent on the upper part of the access road (MIKRS).

The entire study area shoreline is highly vulnerable to storms and hurricanes. Long-term coastal erosion hazard is high at Māhā‘ulepū Beach and moderately high at Kawailoa Bay, Hā‘ula, Kīpū Kai beaches, and the southern portion of

Niumalu (KC 2003). Potential tsunami hazard intensity is considered high along the Māhā'ulepū coast between Punahoa Point and Hā'upu Bay, and at Long Beach in Kīpū Kai. These moderately sloped areas are also vulnerable to coastal stream flooding from seasonal rainfall (KC 2003). The EIS needs to address where and how the cows will be protected and or evacuated and the possibility that the cows will be swept into the ocean during a hurricane. The EIS needs to address what will happen to the manure that has been left on the fields near the stream that takes runoff from Ha'upu ridge and delivers it to the ocean. The EIS needs to consider the alternative of collecting the manure from the fields vs. the planned land application to minimize the threat to the environment. The EIS needs to address the possibility of using the collected field manure in methane gas generators/digesters to produce bio-gas energy.

HDF must prove that there will never be discharge of pollutants from direct surface runoff or ditch discharge into Waiopili stream as it courses directly into the ocean, and that percolation into both shallow and deep groundwater will not contaminate stream, estuarine and coastal waters, especially in light of the hydrologic linking of the valley, streams, aquifers and ocean.

Several state planning documents related to tourism, recreation, and historic trails emphasize the importance of recreational access and resource protection along this coast, especially in light of increasing public use (OSP 1992).

In 1992, Hawai'i's Office of State Planning conducted a land use review that recognized Māhā'ulepū's "combination of outstanding coastal recreational areas, native coastal strand vegetation, significant physiographic, archaeological and scenic resources." Anticipating future development pressure, it said "measures will need to be taken to assure that the sensitive resources here will be protected." Suggested ways to achieve that protection include transfer of development rights and purchase of easements (OSP 1992). The possibility of transfer of development rights needs to be explored/addressed in the EIS.

NRCS Custom Soil Resource Report

On June 5th, 2014, the Natural Resource Conservation Service published a Custom Soil Resource Report focused specifically on the parcel of land intended for use by Hawaii Dairy Farms. The fact of this report, and its findings, was not referenced or

included by Hawaii Dairy Farm's when submitting their current Waste Management Plan for approval to DOH (July 23rd, 2014). Since that filing, Hawaii Dairy Farms has never corrected this omission or explained their lack of any reference to this document or its findings. That omission must be corrected, and the NRCS findings need to be specifically addressed by the EIS.

The Custom Soil Resource Report states that, virtually all of the soils underlying the site have "very limited" capacity for disposal of manure through irrigation. The soils were also determined to be highly susceptible to surface water runoff. The study concluded that the soil types in the area have anywhere from "medium" to "very high" likelihood of surface runoff. The study further concluded that soil remediation on the scale necessary was not feasible.

Water

There are at least three County Wells (F, C, and D- in order of proximity) dangerously close to the proposed farm property that would be covered by planned land applied waste from grazing cattle as well as pumped de-sludged waste residue. These three wells provide the potable water for all of Poipu and most of Koloa. Well F, the nearest, is less than 750 ft. from Block H, a parcel specifically designated for receipt of pumped de-sludge residue. When this same area is actively grazed by cattle (HDF's Plan identifies specific grazing paddocks at this same site), there will be no less than 100,000 lbs of wet manure, and at least 6,000 gallons of urine applied to and left on this site each day. Unfortunately, this same area happens to contain some of the best draining soil of the farm site (as per NRCS Study and HDF's latest Plan). Consequently, the migration of both bacteria and harmful nitrates into the wells is a certainty. The EIS needs to establish how this can be prevented.

Conclusion

Not only does the EIS need to address the foregoing, but its EISPN is notably deficient in its proposal to consider Alternative Locations. In fact, HDF's idea of alternatives is to consider taking no further action at the proposed site, operating a CAFO at the same site, or finding one other potential site. If HDF approaches the EIS process using the methods commonly followed during an EIS process, alternatives should encompass consideration of more than one other location at

which their proposed plan could proceed if necessary. In this case however, HDF has predesigned a very limited alternative consideration and the single alternative site, not yet identified, is inadequate to satisfy the intent of the EIS process. It is interesting to note that when discussing the one alternative location in their EISPN, HDF states, "The micro-climate requires soil conditions favorable for nutrient absorption with access to a reasonable priced irrigation water source, to sustain nutritious grass pastures." The EIS needs to address how HDF could possibly proceed at Maha'ulepu when both the NRCS and their own Iowa Based Soil Study indicate that the soils there are anything but "favorable for nutrient absorption." HDF needs to solidly refute the obvious conclusion that the sensitive ecosystem of Maha'ulepu would be irreparably harmed if their Industrial Dairy is allowed to proceed as proposed.

Sincerely,

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