

**Exhibit 2 – Invitation to December 10, 2021, Listening Session
and Responses**

Initial APE Development and Historic Property Identification

From: [ATMPTeam](#)
To: kiersten@historichawaii.org
Cc: [Papazian, Jennifer \(Volpe\)](#); [REDACTED] [Nadals, Catherine L <FAA>](#); [REDACTED] [Rimol, Kaitlyn \(Volpe\)](#); [Hanchera, Shelby \(Volpe\)](#)
Subject: RE: Listening session regarding ATMP for Hawai'i Volcanoes National Park
Date: Thursday, December 9, 2021 2:18:01 PM
Attachments: [ATMP Listening Session HAVO Dec 10 2021 Final.pdf](#)

Please find attached, copies on the slides for consultation meeting tomorrow.

From: ATMPTeam <ATMPTeam@dot.gov>
Sent: Friday, December 3, 2021 4:24 PM
To: ATMPTeam <ATMPTeam@dot.gov>; kiersten@historichawaii.org
Cc: [Papazian, Jennifer \(Volpe\)](#) <Jennifer.Papazian@dot.gov>; [REDACTED] [Nadals, Catherine L <FAA>](#) <catherine.l.nadals@faa.gov>; [REDACTED] [Rimol, Kaitlyn \(Volpe\)](#) <Kaitlyn.Rimol@dot.gov>; [Hanchera, Shelby \(Volpe\)](#) <Shelby.Hanchera@dot.gov>
Subject: RE: Listening session regarding ATMP for Hawai'i Volcanoes National Park

Dear Kiersten Faulkner:

Last week we sent you an email (see below) inviting you to participate in a virtual listening session being hosted by the Federal Aviation Administration (FAA) and National Park Service (NPS). The purpose of this virtual gathering is to seek your input in the development of an Air Tour Management Plan (ATMP) at Hawai'i Volcanoes National Park. Charone O'Neil-Nae'one, Hawai'i Volcanoes National Park's Community Liaison, will facilitate the listening session which will be held over Zoom on December 10th from 10:00-12:00 (Hawaii time).

We seek to learn from you about historic or sacred areas within the park that you believe could be affected by air tours. We also hope to get your input about any other concerns you may have as we develop an ATMP for Hawai'i Volcanoes National Park.

We have attached the following materials in preparation for the meeting:

- a. Draft Agenda for the December 10th discussion
- b. Map of existing air tour operations over Hawai'i Volcanoes National Park
- c. A copy of draft alternatives developed in 2011
- d. Copies of comments received through Section 106 consultations and NEPA compliance activities in 2004, 2005, 2011, and the 2005 letter

from Kūpuna to FAA Administrator

- e. Copy of cultural assessment *No Pele, No Ko'u Akua La – A Brief Articulation of the Sacred Ecology and Geology of Pelehonuamea* by Kekuhi Keali'ikanakoleohaililan
- f. Copy of the PowerPoint presented to Consulting Parties on October 28, 2021
- g. Meeting summary of the October 28, 2021 meeting
- h. Map and list of historic and cultural properties identified to date within the area of potential affect for the air tour operations

Please let us know if there are additional materials that we should consider during the upcoming processes or feedback on the December 10th agenda.

From: ATMPTeam <ATMPTeam@dot.gov>

Sent: Wednesday, November 24, 2021 12:05 PM

To: kiersten@historichawaii.org

Cc: Papazian, Jennifer (Volpe) <Jennifer.Papazian@dot.gov> [REDACTED]; Nadals, Catherine L <FAA> <catherine.l.nadals@faa.gov>; Manning, Derek (Volpe) <Derek.Manning@dot.gov> [REDACTED]

[REDACTED] Rimol, Kaitlyn (Volpe) <Kaitlyn.Rimol@dot.gov>; Hanchera, Shelby (Volpe) <Shelby.Hanchera@dot.gov>

Subject: Listening session regarding ATMP for Hawai'i Volcanoes National Park

Dear Kiersten Faulkner:

The Federal Aviation Administration (FAA) and National Park Service (the agencies) will hold a virtual listening session for Consulting Parties at Hawai'i Volcanoes National Park on December 10th at 10:00 am (Hawaii time) regarding the development of an air tour management plan (ATMP).

The intent of this meeting is for you to educate us (the agencies) about historic or sacred areas within the park and any additional information you would like to provide regarding past and current concerns of Consulting Parties about the ATMP for Hawai'i Volcanoes National Park. In doing so, we propose the following agenda:

- Summary of past and current comments from Consulting Parties (anything missing?)
- Current Air Tour Activities
- Historic Properties and Sacred Sites Summary of our Knowledge
- Listening Session

We welcome any comment/edits to the above agenda.

Our primary objective for the webinar is to hear from you. Consequently, we will keep presentations to a minimum to allow time for the listening session.

In a follow-up email to this one, you will receive background materials to help facilitate our conversation. These will include: maps showing existing tour operations, a map and list of historic properties and significant cultural sites, copies of the 2011 ATMP alternatives, relevant

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ethnographic/cultural studies, and slides/meeting minutes from the October 28 meeting.

(If you don't receive a follow-up email with the attachments listed above please let us know).

Hawai'i Volcanoes National Park's community liaison, Charone O'Neil-Naeole will facilitate the listening session.

The meeting will be held via Zoom the meeting link is provided below.

Join ZoomGov Meeting

<https://usdot.zoomgov.com/j/1613679252?pwd=N3pMY3l6S2xEdkZWZ0FZTDVmSDBJdz09>

Meeting ID: 161 367 9252

Passcode: 123456

One tap mobile

+16692545252,,1613679252#,,,*123456# US (San Jose)

+16468287666,,1613679252#,,,*123456# US (New York)

Dial by your location

+1 669 254 5252 US (San Jose)

+1 646 828 7666 US (New York)

+1 551 285 1373 US

+1 669 216 1590 US (San Jose)

Meeting ID: 161 367 9252

Passcode: 123456

Find your local number: <https://usdot.zoomgov.com/u/aha6Eb3N2>

Join by SIP

1613679252@sip.zoomgov.com

Join by H.323

161.199.138.10 (US West)

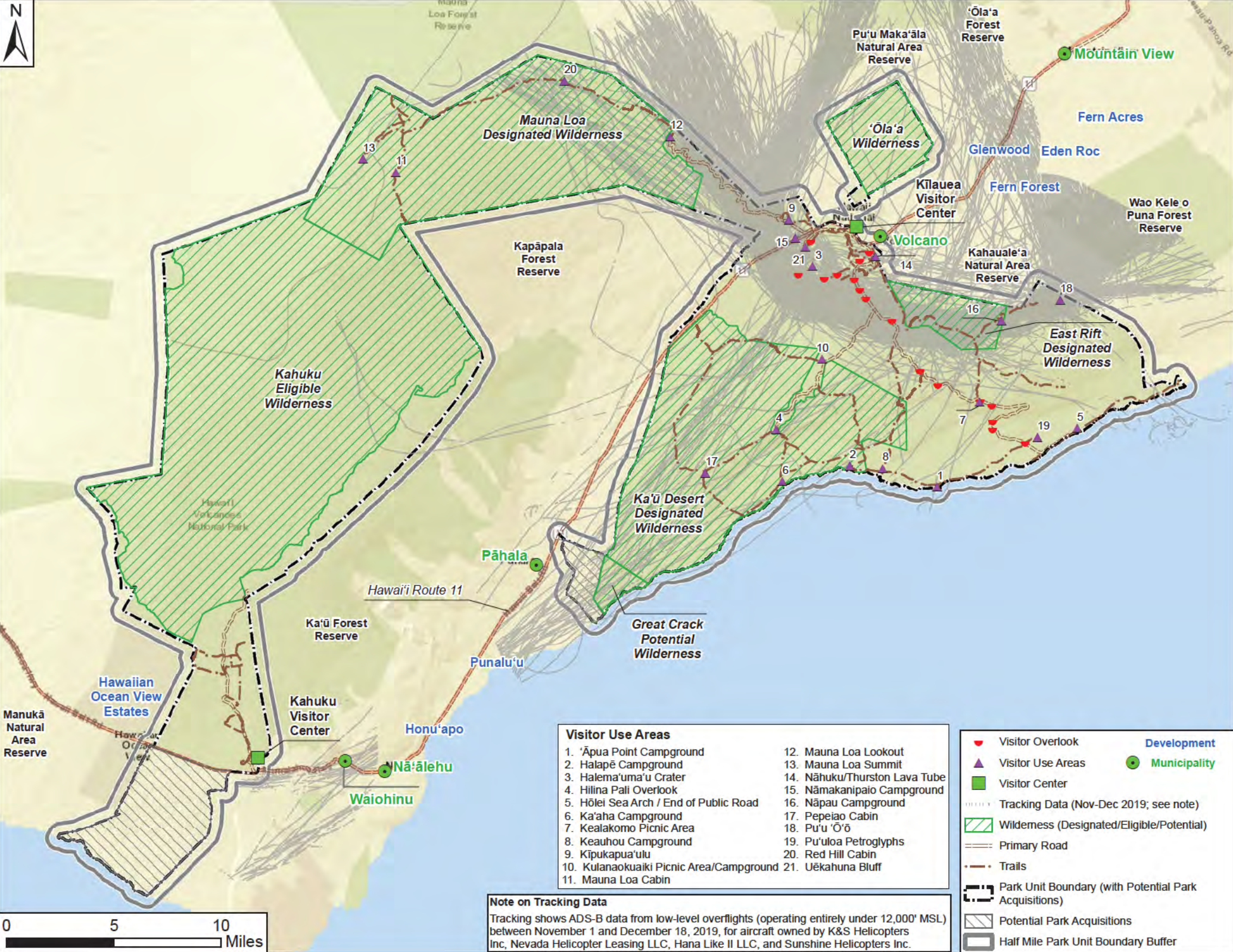
161.199.136.10 (US East)

Meeting ID: 161 367 9252

Passcode: 123456

Hawai'i Volcanoes Air Tour Management Plan Development
Listening Session Agenda
December 10, 2021
10:00 – 12:00

- Summary of past and current comments from Consulting Parties (anything missing?)
- Current Air Tour Activities
- Historic Properties and Sacred Sites Summary of our Knowledge
- Listening Session



Visitor Use Areas

- | | |
|--|-------------------------------|
| 1. 'Āpua Point Campground | 12. Mauna Loa Lookout |
| 2. Halapē Campground | 13. Mauna Loa Summit |
| 3. Halema'ūma'u Crater | 14. Nāhuku/Thurston Lava Tube |
| 4. Hilina Pali Overlook | 15. Nāmanika Campground |
| 5. Hōlei Sea Arch / End of Public Road | 16. Nāpau Campground |
| 6. Ka'aha Campground | 17. Pepee Cabin |
| 7. Kealakomo Picnic Area | 18. Pu'u 'Ō'ō |
| 8. Keauhou Campground | 19. Pu'uolo Petroglyphs |
| 9. Kīpukapua'ulu | 20. Red Hill Cabin |
| 10. Kulanaokuaiki Picnic Area/Campground | 21. Uēkahuna Bluff |
| 11. Mauna Loa Cabin | |

Note on Tracking Data

Tracking shows ADS-B data from low-level overflights (operating entirely under 12,000' MSL) between November 1 and December 18, 2019, for aircraft owned by K&S Helicopters Inc, Nevada Helicopter Leasing LLC, Hana Like II LLC, and Sunshine Helicopters Inc.

- | | |
|---|--------------|
| Visitor Overlook | Development |
| Visitor Use Areas | Municipality |
| Visitor Center | |
| Tracking Data (Nov-Dec 2019; see note) | |
| Wilderness (Designated/Eligible/Potential) | |
| Primary Road | |
| Trails | |
| Park Unit Boundary (with Potential Park Acquisitions) | |
| Potential Park Acquisitions | |
| Half Mile Park Unit Boundary Buffer | |



Hawai'i Volcanoes National Park Air Tour Management Plan

Environmental Impact Statement Newsletter

Preliminary Alternatives for Public Comments

April 2011

Meeting Times and Locations

Volcano

Monday, April 18

5:30-7:30 PM

Hawai'i Volcanoes

National Park

Kilauea Visitor Center

1 Crater Rim Drive

Pahoa

Tuesday, April 19

5:00 - 7:00 PM

Pahoa Community Center

15-2910 Puna Rd.

Na'alehu

Wednesday, April 20

5:00 - 7:00 PM

Na'alehu Community Center

95-5635 Mamalahoa Highway

Hawai'i Volcanoes National Park

Air Tour Management Plan Update

In 2004, the Federal Aviation Administration (FAA) and National Park Service (NPS) asked for your comments on an Air Tour Management Plan (ATMP) Environmental Assessment (EA) related to managing commercial air tour overflights at Hawai'i Volcanoes National Park. In 2005, the project was upgraded to an Environmental Impact Statement (EIS). Since 2007, a planning team composed of staff from FAA, NPS, and the Volpe National Transportation Systems Center has been working on preliminary alternatives for air tour operations over the park

Why has it taken so long?

The planning process has experienced several delays due to differences in FAA and NPS policy and deciding how to best integrate the environmental compliance guidance of both agencies into the air tour management planning (ATMP) process.

Many of you commented during public meetings and in correspondence for both the EA and the EIS scoping efforts. We would like to share our progress on this project over the past several years and encourage your renewed involvement. This newsletter contains a summary of the preliminary alternatives for the Hawai'i Volcanoes National Park ATMP for your review and comment. A description of expected tasks during the upcoming months is also provided, as well as information on additional opportunities for you to provide input. We hope you will join us at one of our open houses to share your ideas and any comments about commercial air tour overflights.

Thank you for your continued interest and involvement in developing an ATMP for Hawai'i Volcanoes National Park.

The purpose of this document is to present preliminary alternatives for the Hawai'i Volcanoes National Park ATMP EIS for public and stakeholder input. It is important to emphasize that final decisions have not been made on any of the alternatives and elements of the alternatives, and no detailed analysis of environmental impacts has been performed yet. After public and stakeholder input are received, the alternatives and elements of the alternatives may be refined, dismissed from further consideration, or new alternatives may be considered. Alternatives that are carried forward will be analyzed in the Draft EIS. As required by the Council on Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act (NEPA), the Draft EIS will be made available for review and public comment.

Under NEPA, alternatives must meet the purpose (i.e., objective) and need for the action. Under the National Parks Air Tour Management Act (NPATMA) of 2000, an ATMP needs to be established "for any national park or tribal land for which such a plan is not in effect whenever a person applies for authority to conduct commercial air tour operation over the park." The objective of an ATMP as defined by NPATMA "shall be to develop acceptable and effective measures to mitigate or prevent the significant adverse impacts, if any, of commercial air tour operations upon the natural and cultural resources, visitor experiences, and tribal lands." According to NPATMA, Commercial air tour operations are defined as any flight conducted for compensation or hire in a powered aircraft, where a purpose of the flight is sightseeing over a national park, within ½-mile outside the boundary of any national park, or over tribal lands during which the aircraft flies below 5,000 feet above ground level (AGL).

An ATMP will incorporate the following:

- **Reporting requirements** - There will be a requirement for commercial air tour operators to provide regular reporting of air tour flights approved under the ATMP.
- **FAA airspace authority** - The FAA has authority for all airspace matters, including any enforcement actions for violations under the ATMP, which will be processed in accordance with existing FAA procedures and regulations.
- **Competitive bidding** - NPATMA states whenever an ATMP limits the number of commercial air tour operations during a specified time frame, a competitive bidding process is triggered. Since the number of flights would be limited for Alternatives 3, 4, and 5, competitive bidding would be required.
- **Above Ground Level (AGL)** - The range of altitudes examined in the alternatives will be from 500 to 5,000 feet AGL. Altitudes for fixed-wing aircraft must be separated by 500 feet above the altitudes listed for helicopters. It is unlawful to operate any aircraft within 1,000 feet AGL of any humpback whale in the vicinity of the Hawaiian Islands.
- **Flight Routes and In-flight Deviations** - The maps included in the preliminary alternatives show general representations of where flights occur, as there is no single line that would represent where all aircraft would fly. The routes represent what will be used for modeling purposes in impact analysis. Pilots may deviate from routes and corridors when necessary due to weather, volcanic activity, or other safety issues.

INSTRUCTIONS FOR PUBLIC COMMENT:

Please comment on any alternative and/or alternative element described below. Comments that describe why something will or will not work, or provide new ideas or factual information to correct or adjust assumptions made, as opposed to just expressing like or dislike, are particularly helpful.

Alternative 1: No Action, Interim Operating Authority (IOA)

Objective: Required by the CEQ and NEPA regulations.

Description: Alternative 1 represents a continuation of what is currently flown and allowed under existing law including, but not limited to, each company's IOA as granted by the FAA (Federal Register, Vol. 70, No. 194, October 7, 2005, page 58778), applicable regulations that govern air safety found at Title 14 Code of Federal Regulations Part 136, Appendix A (formerly Special Federal Aviation Regulation 71), and any FAA deviations issued to individual operators as outlined by the Hawai'i Air Tour Common Procedures Manual (HI Manual). The companies granted IOA for Hawaii Volcanoes National Park include the following 10 helicopter operators: K&S doing business as Tropical Helicopters, Safari Aviation, Sunshine Helicopters, Blue Hawaiian Helicopters, Hawaii Helicopters, Maui Island Air doing business as Volcano Air Tours and Maui Air, Paragon Air, Rainbow Pacific Helicopters, Makani Kai Helicopters, and Manuiwa Airways, Inc., doing business as Volcano Helicopters. The following four fixed wing operators have been granted IOA: Call Air, Big Island Air, Above It All, doing business as Island Hoppers and Mokulele Flight Service. These companies are granted authority to fly up to a total of 28,441 air tours (22,758 helicopter and 5,683 fixed-wing) annually over Hawai'i Volcanoes National Park within a ½-mile buffer of the park boundary below 5,000 feet AGL. The actual number of annual air tours may fluctuate dependent upon demand, but cannot exceed the IOA amount authorized.

Based on fees collected in 2008, the NPS believes that approximately 18,000 helicopter and fixed-wing air tours were flown above the park and within the ½-mile buffer zone. There are no mandatory flight routes or no-fly zones. The actual flight path of air tours can vary due to operator preference, safety considerations, weather conditions, and volcanic activity at the time of the tour. There are temporary, voluntary no-fly periods for events which occur occasionally. The attached map for this alternative shows where commercial operators have indicated that air tour operations are generally known to occur or have historically been flown by operators that have IOA. Operators have been granted deviations to fly below 1,500 feet AGL over Hawai'i Volcanoes National Park and within a ½-mile buffer provided they meet certain requirements and limitations set forth by the FAA in the HI Manual. Areas where operators are allowed to fly below 1,500 feet AGL are shown on the maps in the HI Manual.

Alternative 2: No Park Air Tours

Objective: Alternative 2 seeks the greatest protection for the purposes, resources, and values of the park including the summits of Kilauea and Mauna Loa that hold spiritual and cultural significance to Native Hawaiians; threatened and endangered species and other wildlife sensitive to noise; Congressionally-designated wilderness and visitor opportunities for solitude; ground-based visitor experience; Native Hawaiian traditional cultural practices; scenic qualities, and natural sounds.

Description: Commercial air tour operations below 5,000 feet AGL within the entire park and within the ½ mile buffer zone around the park would not be allowed. The park itself is designated as an area to remain free

of commercial air tours under 5,000 feet AGL regardless of future eruptions or lava flows. In this alternative, air tours could still continue to be flown outside the planning area above 5,000 feet AGL and outside the ½-mile buffer. Viewing of lava flows and ocean entry flows outside the planning area is possible.

Based on current air tour activity, routes outside of the park planning area are expected to be similar to existing routes. An unlimited number of air tours originating on Hawai'i Island from Hilo, Kailua-Kona, Hapuna and Waikaloa, and airports on Maui and Oahu would still continue to fly outside of the park and ½-mile buffer below 1,500 feet AGL in accordance with the HI Air Tour Common Procedures Manual. The actual flight path of air tours outside the planning area would vary due to operator preference, volcanic activity, and weather conditions at the time of the air tour. The attached map for this alternative shows where commercial operators indicate that air tour flights would most likely occur outside the park and ½-mile buffer and above 5,000 AGL based on currently known flights.

Alternative 3: Access to Southeast and Southwest Rift Zones; Mitigation Measures and Adaptive Management for Southwest Rift Zone

Objective: Alternative 3 examines the impacts of providing multiple air tour route access to historically active volcanic areas of the park with some mitigations and incorporates adaptive management to address the potential for future change.

Description: Commercial air tour operations would fly across the edge of Halema'uma'u Crater and Kilauea's remote southeast rift to access the Pu'u 'Ō'ō flight zone with west side viewing of Pu'u 'Ō'ō for quiet technology (QT) aircraft only. A flight transit zone for flights from Kailua-Kona Airport and Waikoloa and Hapuna Heliports would cross north of the park parallel to the Mauna Loa Road and continue southeast along Highway 11 toward the Pu'u 'Ō'ō flight zone. Alternatively, flights could proceed from Kilauea Caldera west-southwest along Highway 11 and out to the coast if a weather route was needed. The Southwest Rift flight zone shown in this area within the park would be considered as an adaptive management strategy for flight concentrations if lava emerges. A coastal flight corridor would also pass inland along the coastal boundary of the park along the park's designated wilderness, both inside and outside of the planning area. No air tours would occur below 5,000 feet AGL in the rest of the planning area. Safety considerations and levels of impacts to resources determined by the analyses would be used to establish appropriate altitudes within the planning area. The attached map shows where commercial air tour operations would fly.

Alternative elements:

- **Caps on numbers of flights allowed annually, and *daily*:**
 - A range of flight numbers would be analyzed; 10 percent (1,800); 35 percent (6,300); and 60 percent (10,800) of the 2008 flight levels of 18,000 flights.
 - Daily Caps: Impacts analyses would be used to set daily caps that would potentially limit the number of air tours flown on any one day or the maximum number of flights allowed per day.

- **Loitering/Circling:**

Impacts analyses would be used to set mandatory time limits within Pu'u 'Ō'ō Concentrated Flight Zone e.g., 8-15 minutes allowed for Pu'u 'Ō'ō (east side only, exception on west side for QT aircraft only) and within the Southwest Rift flight zone.

- **Time of day and day of week restrictions will be analyzed to include the following:**

Flights would be allowed on all days except Sunday and Wednesday between the hours of 10:00 a.m. – 4:00 p.m. (exception for QT helicopters noted below).

- **Adaptive Management:**

Adaptive management is a systematic approach for improving resource management by learning from management actions or choices. For example, how should the ATMP address changed conditions like a new lava flow in a different area of the park, or if the breeding habitat of a sensitive species has moved to a new area? Alternative 3 would analyze an adaptive management strategy for the following: 1) analyze air tours that utilize quiet technology where there are new lava flows; and 2) analyze curtailing air tours if sensitive species move into an air tour route.

- **Quiet Technology (QT) and Incentives:**

NPATMA requires that the ATMP include incentives for the adoption of QT by air tour operations. Examples include preferred commercial air tour routes and altitudes, and relief from caps and curfews. This alternative would lessen day of week restriction to include flights on Sundays for QT. Time of day restrictions would also increase hours from 9:00 a.m.-5:00 p.m. The Pu'u 'Ō'ō route approaching Nāpau wilderness on the west side could only be flown by QT aircraft. Potential cap relief would be subject to impact analysis. After an impact analysis is conducted, an option to allow QT aircraft to fly lower than regular aircraft would be considered. Use of QT would also be examined in competitive bidding.

- **Interpretive Training and Education:**

NPS would provide air tour operators with *mandatory* training regarding park resources, including training on the cultural significance of red lava and other park resources that are important to Native Hawaiians. NPS believes this would provide air tour operators with current and accurate information about park resources that could be shared with their passengers, as well as provide explanations for reasons why air tours are limited in some areas. Training would include the following: 1) annual training class for pilots by NPS in park's natural/cultural resources; 2) brochures developed by NPS to be distributed to air tour passengers.

Education/notification for ground visitors: Park visitors on the ground would be alerted to existence of areas that would most likely be affected by air tours so that they have the option to avoid them.

- **Restrictions for Special Events**

This alternative would analyze a mandatory 5-mile standoff for special events limited to the day of the event. These would include the following: 1) Native Hawaiian Cultural Festival; 2) Native Hawaiian Investiture; 3) Other natural and cultural resource programs with two months notice; and 4) Voluntary standoff for events not yet identified.

Alternative 4: East Rift Zone Access

Objective: This alternative examines the impacts of air tour access on Kilauea's southeast rift along the Pu'u 'Ō'ō concentrated flight zone, with west-side access across the lower southern edge of Kahuku, on the southwest rift of Mauna Loa. The heart of the park would be free of commercial air tours.

Description/Characteristics: Flights would occur within the current Pu'u 'Ō'ō concentrated flight zone historically used by air tours with a modification to exclude viewing on the west side of Pu'u 'Ō'ō Crater. A flight transit corridor would cross the lower south side of the Kahuku Unit and would also pass inland along the coastal boundary of the park along the park's designated wilderness, both inside and outside of the planning area. The attached map for this alternative shows where commercial air tour operations would fly. Safety considerations and levels of impacts to resources determined by the analyses will be used to determine appropriate altitudes within the planning area.

Other Alternative Elements:

- **Caps on numbers of flights allowed annually, and weekly:**
 - This alternative would analyze a range of numbers of flights: 2008 flight levels- 18,000; 60 percent (10,800); 35 percent (6,300) and 10 percent (1,800).
 - Weekly Caps: Set weekly caps limiting the number of flights flown in any week and determine so as not to exceed allowable weekly impacts. This weekly cap would be the maximum number of flights allowed per week.
- **Loitering/Circling:** Not allowed.
- **Time of day and day of week restrictions:** Overflights allowed 9:00 a.m. – 5:00 p.m. (exceptions below for QT aircraft). No overflights on Sunday.
- **Quiet Technology (QT) and Incentives:**

NPATMA requires that the ATMP include incentives for the adoption of QT by air tour operations. This alternative incorporates the following QT incentives:

- Time of day restrictions lessened for quiet technology aircraft: 8:00 a.m. – 5:00 p.m.*
- Cap relief: Potential cap relief would be subject to impact analysis, potential altitude relief, and advantage for competitive bidding allowed for QT aircraft to the extent it does not exceed To Be Determined (TBD) impacts threshold. It could be allowed anytime, or only in the event of an eruption (when there may be a greater demand for overflights).

* Afternoon restriction time is not extended due to potential impacts to night flying of Threatened and Endangered bird species leaving their nests.

- Altitude: May allow QT aircraft to fly lower than regular aircraft.
- **Pilot Interpretive Training and Education:**

NPS would provide *voluntary* training for air tour pilots regarding park resources, including information on cultural significance of red lava and park resources to Native Hawaiians. NPS believes this would provide air tour operators with current and accurate information about park resources that could be shared with their passengers, as well as provide explanations for reasons why air tours are limited in some areas. Training would include the following: 1) annual training class for pilots by NPS on the park's natural/cultural resources; 2) brochures developed by NPS to be distributed to air tour passengers.

While the training is voluntary, participation by air tour operators would be one of the factors evaluated in the competitive bidding process.

 - Education/notification for ground visitors: Park visitors on the ground would be alerted to existence of areas that would most likely be affected by air tours, so that they have the option to avoid those areas.
- **Restrictions for Special Events**
 - *Voluntary* 3-mile standoff for special events which could be impacted by overflights, limited to the day of the event. These include the following: 1) Native Hawaiian Cultural Festival; 2) Native Hawaiian Investiture; 3) Other natural and cultural resource programs with 2 months notice; and 4) Voluntary standoff for events not yet identified.

Alternative 5: Access to East and Southwest Rift Zones; Limited Mitigation; Incorporates Range of Numbers Including IOA

Objective: This alternative examines the impacts of multiple air tour route access to historically active volcanic areas of the park.

Description/Characteristics: Alternative 5 is comprised of commercial air tour routes that would access across the edge of Halema'uma'u Crater and Kīlauea's southwest rift and southeast rift including Pu'u 'Ō'ō with west side viewing of Pu'u 'Ō'ō included. It would also have several routes for west side or circle island air tour operators. A flight transit zone for west side flights from Kailua-Kona Airport, Waikoloa and Hapuna Heliports crosses north of the park parallel to the Mauna Loa Road and continues southeast along Highway 11 toward the Pu'u 'Ō'ō concentrated flight zone. Alternatively, flights could proceed from the Kīlauea Caldera southwest along Highway 11 to the southwest rift concentrated flight zone if red lava were to emerge there, or if a weather route were needed. Flights from Hilo would proceed to and from the Pu'u 'Ō'ō concentrated flight zone from the northeast. A coastal flight corridor also passes inland along the coastal boundary of the park above park wilderness. No air tours below 5,000 feet AGL are allowed in the rest of the planning area. Safety considerations and levels of impacts to resources determined by the analyses will be

used to establish appropriate altitudes within the planning area. The attached map for this alternative shows where commercial air tour operations would fly.

Other alternative elements:

- **Caps on numbers of flights allowed annually:**
 - This alternative would analyze a range of numbers of flights: IOA at 28,441, 2008 flight levels - 18,000; 60 percent (10,800), 35 percent (6,300) and 10 percent (1,800) of 18,000. QT exceptions may also apply and QT aircraft may be allowed additional flights.
- **Time of day and day of week restrictions:** None, except as provided per existing FAA regulations.
- **Loitering/Circling:** Impacts analyses would be used to determine the time limit within the zone e.g., 8-15 minutes allowed for Pu‘u ‘Ō‘ō (east side only, exception below for QT aircraft).
- **Quiet Technology (QT) and Incentives:** This alternative might allow QT aircraft to fly lower than regular aircraft. Potential cap relief for QT is subject to impacts analysis, potential advantage for QT in competitive bidding.
- **Pilot Training and Education:** None.
- **Restrictions for Special Events:** None.

NEXT STEPS

The planning team expects to complete the following tasks in the upcoming months:

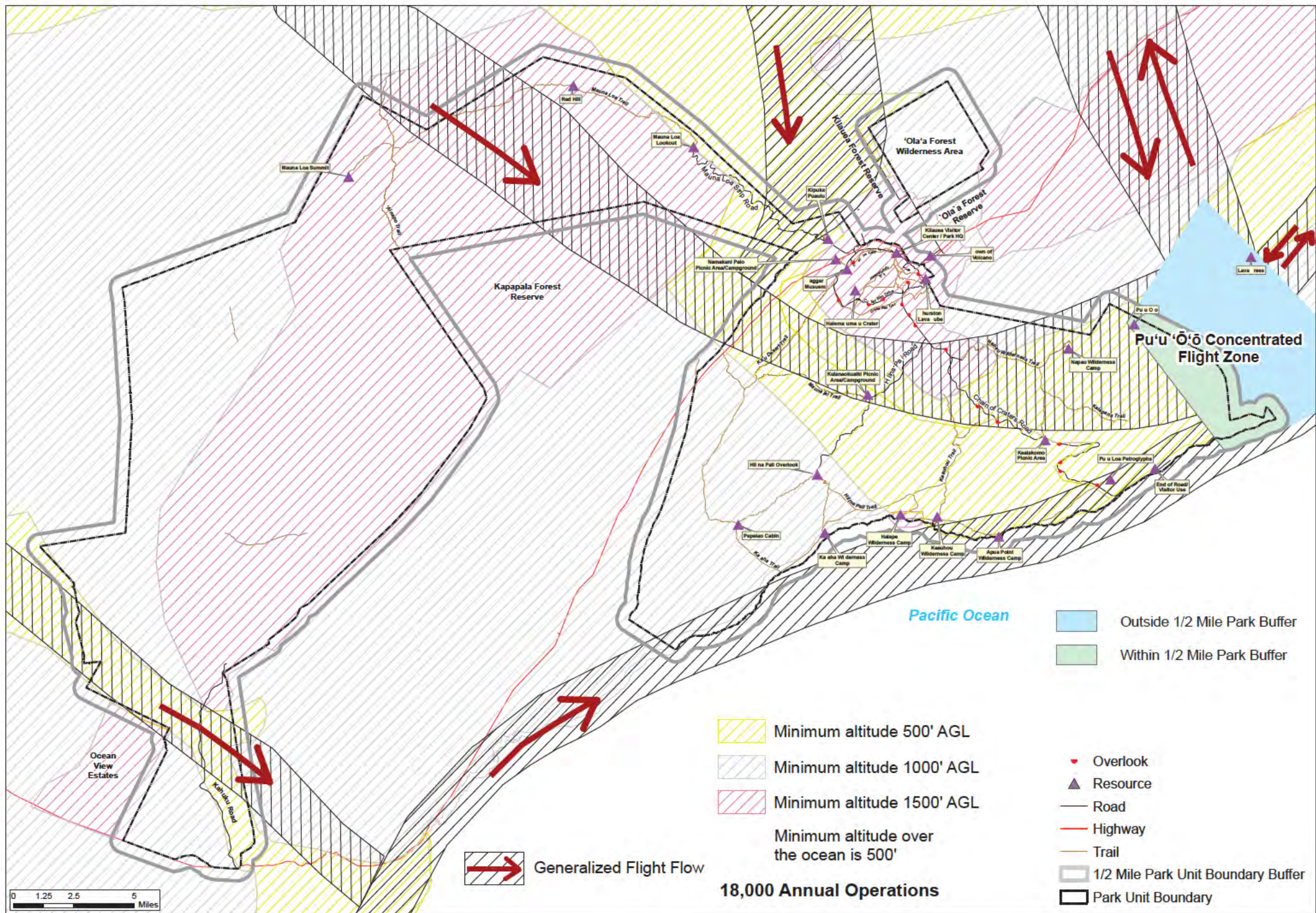
- Hold open-house public meetings to solicit comments on preliminary alternatives (Comments will be due by June 6, 2011).
- Revise alternatives as needed.
- Complete noise impacts modeling.
- Complete and distribute Draft Environmental Impact Statement (DEIS) for public and agency comment.
- Hold public meetings/hearings to solicit comments on the DEIS.

Public Meetings
<p>Volcano Monday, April 18 5:30-7:30 PM Hawai'i Volcanoes National Park Kilauea Visitor Center 1 Crater Rim Drive</p>
<p>Pahoa Tuesday, April 19 5:00 - 7:00 PM Pahoa Community Center 15-2910 Puna Road</p>
<p>Na'alehu Wednesday, April 20 5:00 - 7:00 PM Na'alehu Community Center 95-5635 Mamalahoa Highway</p>

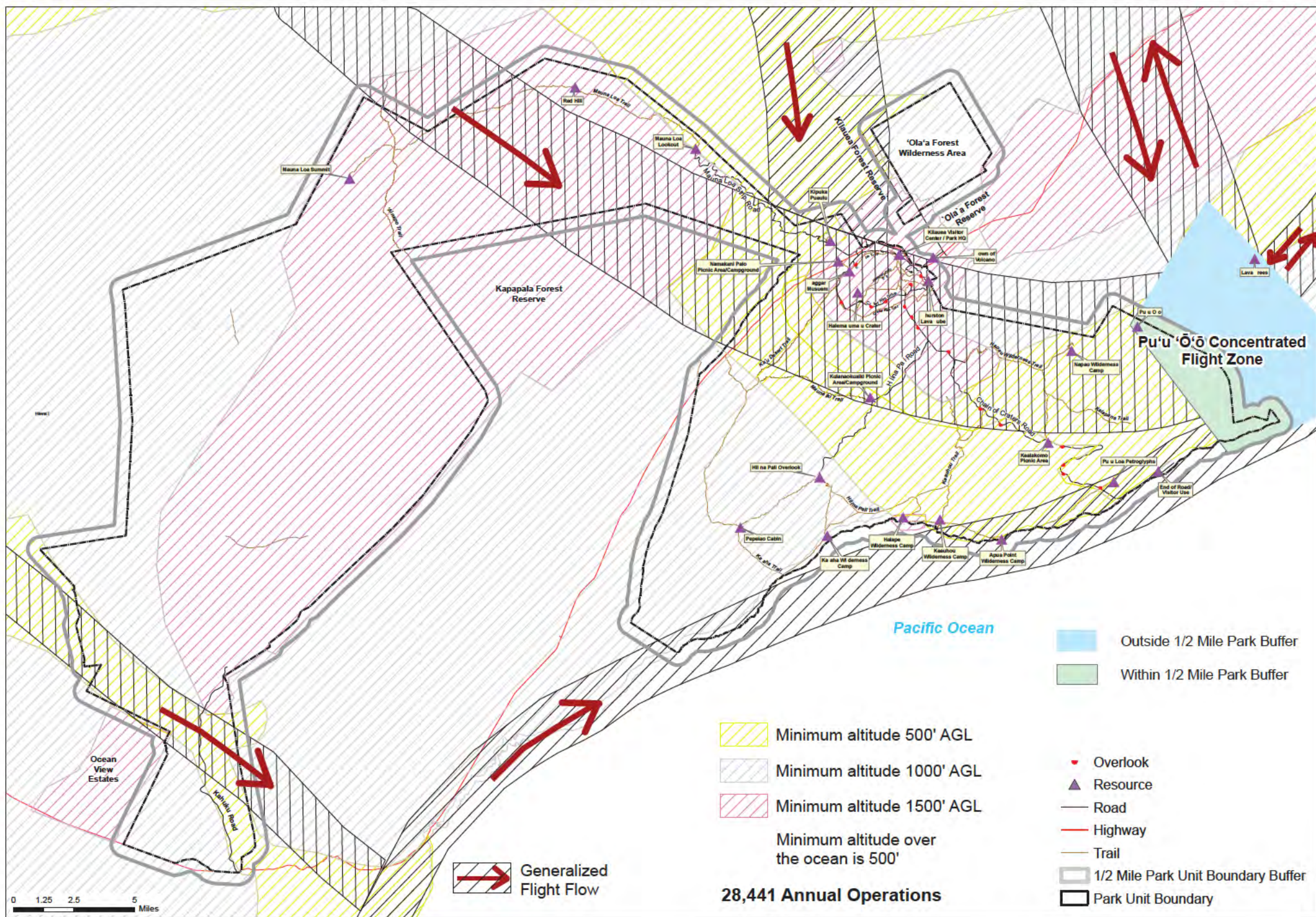
Preliminary Alternatives

Alternative	1– No Action IOA	2 – No Park Air Tours	3 -Access to Southeast and Southwest Rift Zones; Mitigation Measures and Adaptive Management for Southwest Rift Zone	4- East Rift Zone Access	5- Access to East and Southwest Rift Zones; Limited Mitigation; Incorporates Range of Numbers Including IOA
General Description	What is currently flown and allowed under existing law	Air tours not allowed below 5000' AGL within the entire park and within the half-mile buffer zone around the park. Air tours could still continue to be flown outside of this area. Park itself is designated to remain free of commercial air tours below 5,000 AGL regardless of future eruptions or lava flows.	Air tours would fly across the edge of Halema'uma'u Crater and Kilauea's southeast rift to access the Pu'u 'Ō 'ō flight zone. West side viewing for QT aircraft only. Flight transit zone for flights from Kailua-Kona would cross north of the park parallel to the Mauna Loa Road and continue southeast along Highway 11 towards Pu'u 'Ō 'ō flight zone. Flights could also proceed from Kilauea Caldera west-southwest along Highway 11 to the coast if a weather route was needed. A coastal flight corridor would also pass inland along the coastal boundary of the park. A Southwest Rift flight zone would be considered an adaptive management strategy for flight concentrations if lava emerges in this area.	Air tours would occur within the Pu'u 'Ō 'ō flight zone currently flown with a modification to exclude viewing on the west side of Pu'u 'Ō 'ō Crater. A flight transit corridor for west-side flights would cross the lower south side of the Kahuku Unit and would also pass inland along the coastal boundary of the park, both inside and outside of the planning area.	Air tour routes would access across the edge of Halema'uma'u Crater and Kilauea's southwest rift and southeast rift including Pu'u 'Ō 'ō with west side viewing of Pu'u 'Ō 'ō included. A flight transit zone for flights from Kailua-Kona crosses north of the park parallel to the Mauna Loa Road and continues southeast along Highway 11 towards the Pu'u 'Ō 'ō flight zone. Alternatively, flights could proceed from the Kilauea Caldera southwest along Highway 11 to a southwest rift flight zone if red lava were to emerge there, or if a weather route was needed. A coastal flight corridor also passes inland along the coastal boundary of the park. No air tours below 5,000' AGL in the rest of the planning area.
Objective	Required by the Council on Environmental Quality and NEPA	Examines the impacts of no air tours in the ATMP planning area.	Examines the impacts of providing multiple air tour route access to historically active volcanic areas of the park with some mitigations and incorporates adaptive management to address the potential for future change.	Examines the impacts of air tour access to Kilauea's southeast rift and the Pu'u 'Ō 'ō flight zone, with west-side transit across the lower southern edge of Kahuku, on the southwest rift of Mauna Loa. The heart of the park will be free of commercial air tours in designated wilderness and above many cultural and visitor use areas.	Examines the impacts of multiple air tour access to historically active volcanic areas of the park.
Annual Number of Flights	Limited to IOA: Up to 28,441 flights. Current condition existing number of flights within ATMP planning area for 2008: 18,000 flights	None within park or 1/2 mile buffer below 5,000' AGL	Range of numbers based on existing current conditions of 18,000 flights; 60% (10,800), 35% (6,300) and 10% (1,800). This alternative will consider use of daily caps. Quiet technology (QT) exceptions may also apply and QT aircraft may be allowed additional flights.	Range of numbers based on existing current conditions of 18,000 flights; 60% (10,800), 35% (6,300) and 10% (1,800) This alternative will consider use of weekly caps. Quiet technology (QT) exceptions may also apply and QT aircraft may be allowed additional flights.	Range of numbers based on IOA - 28,441; existing current conditions of 18,000; 60% (10,800), 35% (6,300), and 10% (1,800) of 18,000.
Number of Operators	Limited to IOA: 11 helicopters and 4 fixed wing operators	Unlimited outside ATMP planning area. None within park or 1/2 mile buffer below 5,000' AGL.	To Be Determined (TBD) based on competitive bidding	TBD based on competitive bidding	TBD based on competitive bidding
Routes	Trans-park including Kilauea and Mauna Loa calderas, Kahuku crossing, coastal, Pu'u 'Ō 'ō flight zone (see map)	None within park or 1/2 mile buffer below 5,000' AGL. Air tours could still continue to be flown outside of ATMP planning area. Viewing of lava and ocean entry flows would be possible (see map)	Mauna Loa Corridor, edge of Hale ma u Crater, Highway 11 east to Pu'u 'Ō 'ō flight zone or Highway 11 west and then out to coast on park boundary for weather route. Southwest Rift flight zone would be option if lava emerges in this area (see map).	Kahuku transit route and Pu'u 'Ō 'ō flight zone and coastal route (see map).	Mauna Loa corridor, Highway 11, Pu'u 'Ō 'ō flight zone and coastal route (see map).
Minimum altitudes	Per HI Air Tour Common Procedures Manual	5,000 ft. AGL over park and within 1/2 mile buffer	500'-5,000' AGL	500'-5,000' AGL	500'-5,000' AGL
Time of Day	Per existing FAA regulations	N/A within ATMP planning area	Overflights allowed 10am-4pm (QT 9am-5pm)	Overflights allowed 9am-5pm (QT 8am-5 pm)	None except as per existing FAA regulations
Day of Week	None	N/A within ATMP planning area	No overflights Sunday (QT exempted) and	No overflights Sunday	None
Loitering/Circling	None	N/A	TBD based on time limit within zone e.g. 8-15 minutes allowed for Pu'u 'Ō 'ō (east side only)	No Loitering/Circling	TBD based on analyses of various time limits within Pu'u 'Ō 'ō flight zone (east side only, exception below for QT aircraft)
Adaptive Management	None	N/A	1) May allow air tours where there are new lava flows 2) May curtail air tours if sensitive species move into an air tour route	none	none
Quiet Technology Incentives	None	N/A	Potential cap relief subject to impact analysis, route allowed per adaptive management for future red lava areas and west of Pu'u 'Ō 'ō, altitude relief, relaxed time of day/day of week restrictions, advantage for competitive bidding	Potential cap relief subject to impact analysis for future red lava areas, potential altitude relief and relaxed time of day restrictions, advantage for competitive bidding	Potential cap relief subject to impacts analysis, potential altitude relief and advantage for competitive bidding
Competitive Bidding	N/A	N/A	Required	Required	Required
Pilot Interpretive Training and Education	Not Required	N/A	Mandatory for operators, also notification for ground visitors on locations of air tours so they have option to avoid (to be developed by NPS)	Voluntary for operators, factor in competitive bidding, also notification for ground visitors on locations of air tours so they have option to avoid (to be developed by NPS)	None
Restrictions for Particular Events	Voluntary No-fly for special events	N/A	Mandatory 5-mile standoff distance for special events which could be impacted by air tour overflights, limited to the day of the event. These include the following: 1) Native Hawaiian Cultural Festival; 2) Native Hawaiian Investiture; 3) other natural and cultural resource programs with two months notice; 4) voluntary standoff for events not yet identified.	Voluntary 3-mile standoff distance for special events which could be impacted by air tour overflights, limited to the day of the event. These include: 1) Native Hawaiian Cultural Festival; 2) Native Hawaiian Investiture; 3) other natural and cultural resource programs with two months notice; 4) voluntary standoff for events not yet identified.	None

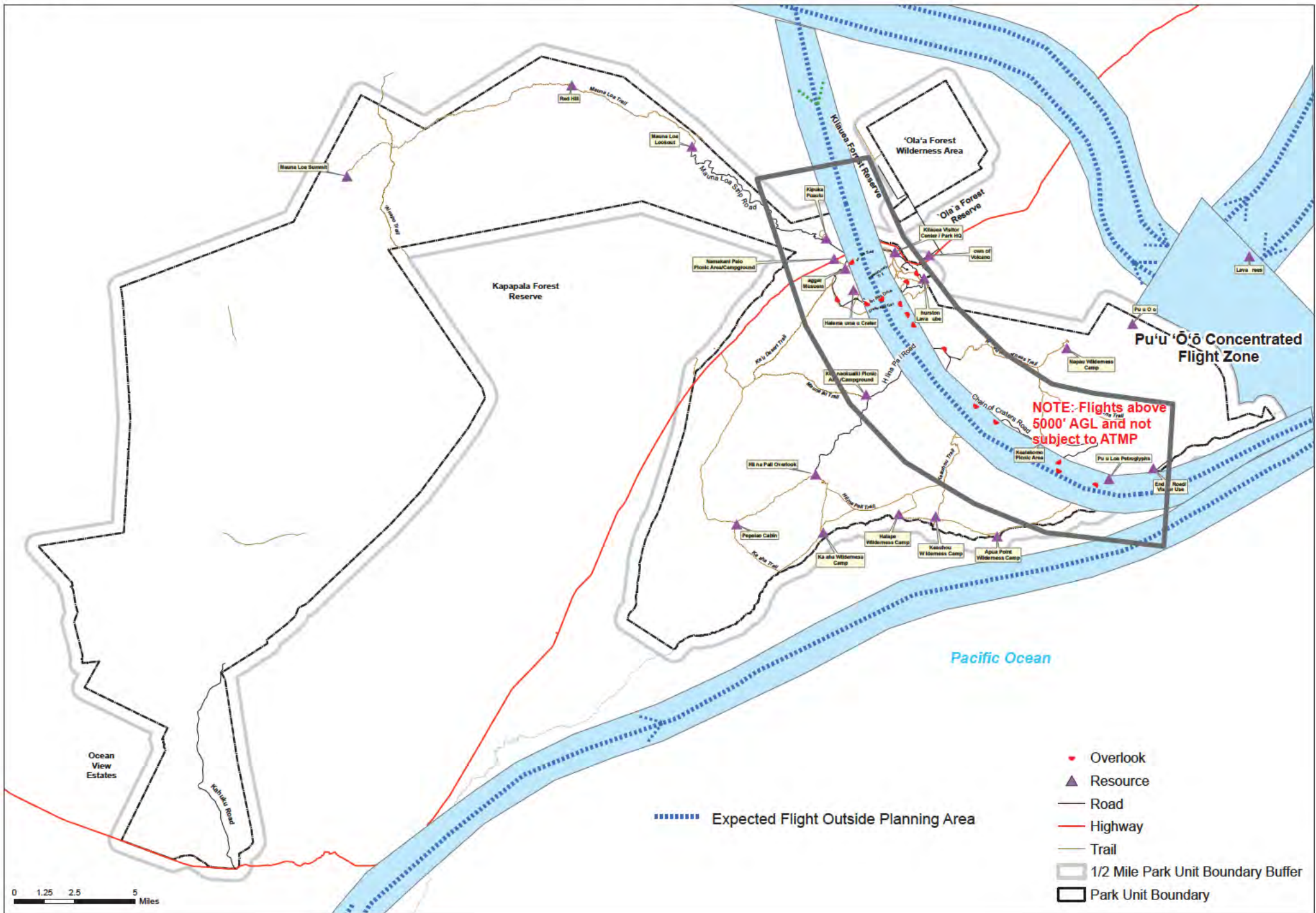
A horizontal scale bar with a black background and white markings. The markings are labeled 0, 1.25, 2.5, and 5. The word "Miles" is written in blue at the right end of the bar.



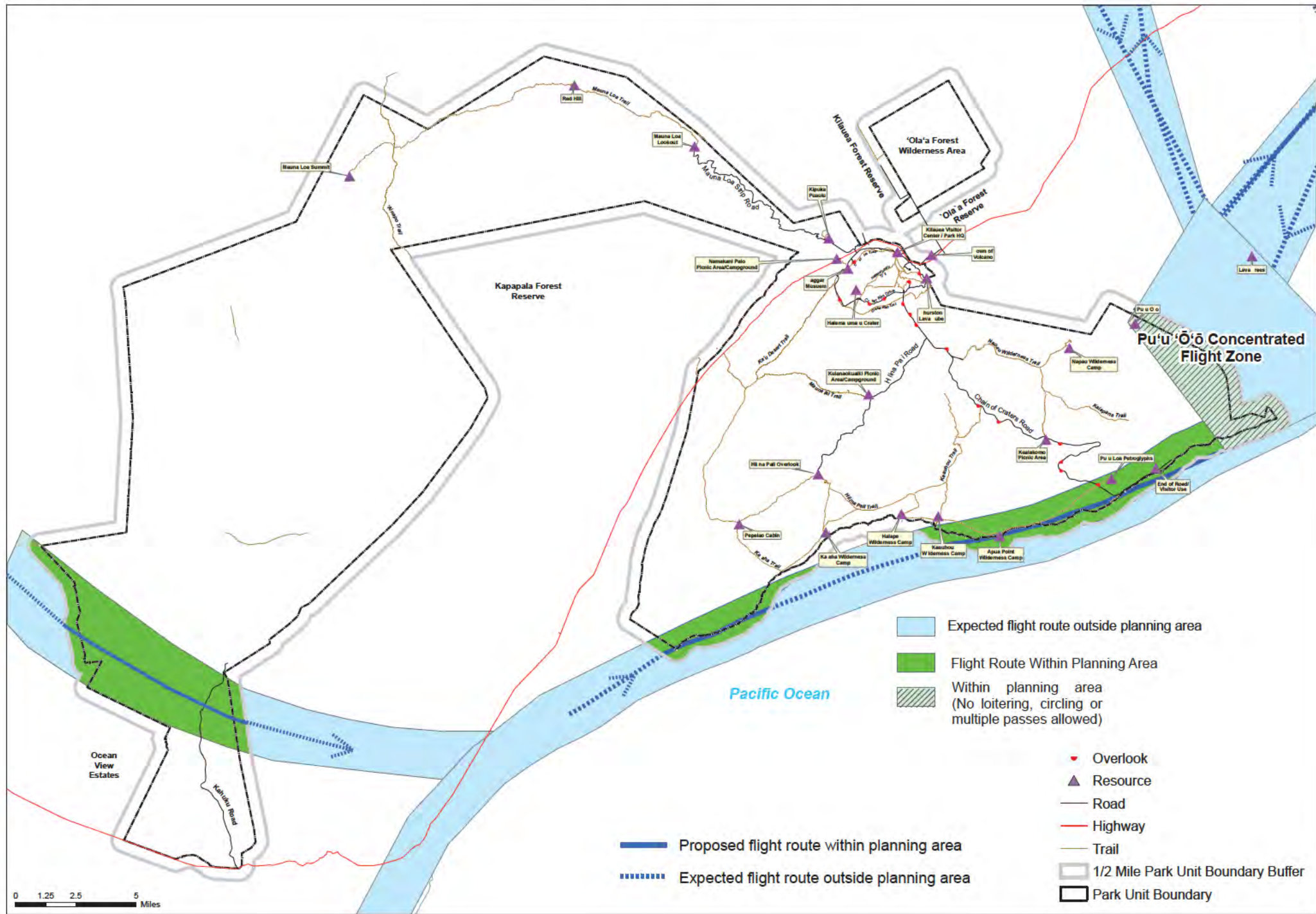
DRAFT Alternative 1 - No Action IOA



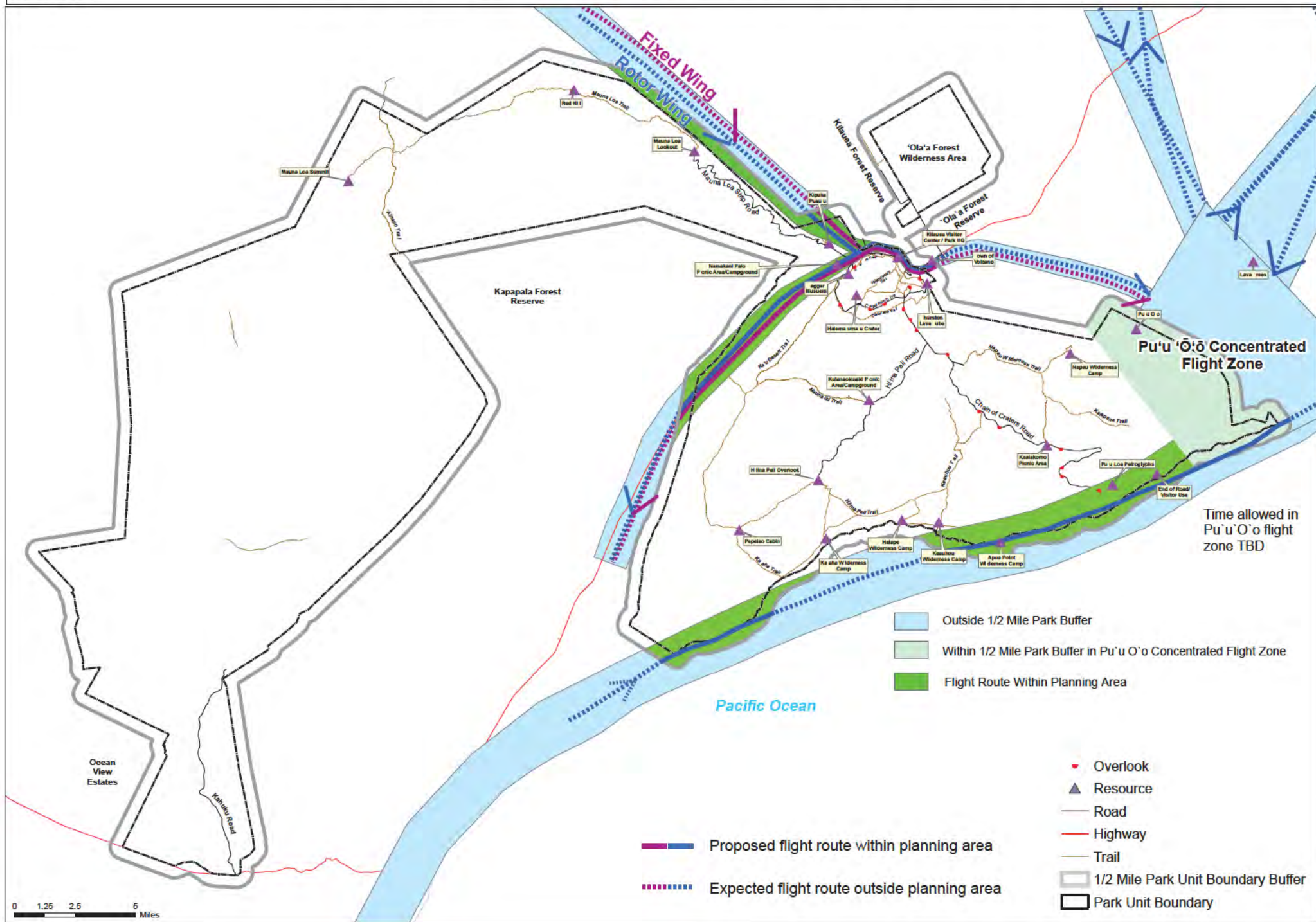
DRAFT Alternative 2 - No Park Air Tours



A horizontal scale bar with tick marks at 0, 1.25, 2.5, and 5. The word "Miles" is written at the right end of the bar.



April, 2011



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Comment Form

We would like to have your thoughts on this issue. After completing your comments, please fold this form in the middle and tape it closed (please no staples).

You may also respond at <http://parkplanning.nps.gov/projectHome.cfm?projectID=36002>

Your comments would be most helpful if received no later than **JUNE 6, 2011**. Thank you.

DRAFT - April 18, 2011 Kupuna Meeting Minutes, 9:00 a.m. KMC Ohia Room

Present: John Replogle – Kupuna Ka’u, Ululani Sherlock – Kupuna Advisory, Leialoha Ilae-Kaleimamahu – Kupuna Board – Kaimu Rep., Keola Awong – Volcano Community Member, Larry Tonish – Project Manager FAA, Vicki McCusker – NPS Natural Sounds Program, HAVO staff: Lora Gale, Talmadge Magno, Laura Schuster, Cindy Orlando, Rita Pregana, Danielle Foster (took notes for items 1-3)

Items 1 and 2 were deleted from this because they were unrelated to the ATMP discussion.

3. ATMP – Preliminary Draft Alternatives comment period

PowerPoint Presentation on the background, alternatives given by Lora Gale

Laura provided the Kupuna letter to Senator Akaka dated 2/28/2005, Kupuna Minutes 3/18/2005

FAA has jurisdiction over airspace, we have jurisdiction over park; FAA is lead on EIS, HAVO is a cooperator

Note on maps – the flight paths on the alternatives are the routes the operators currently prefer. If there was an eruption somewhere else, the operators could fly there. The only place they can’t is within the TFR area (temporary flight restriction area created due to the current eruption activity).

5,000’ above ground level is allowed in No Flights alternative – actually means 9,000 elevation, so unlikely the operators will do that.

Vicki discussed what decibel level means and what the decibels are for sounds we frequently hear. Showed the simulation of the noise model for motorcycle and helicopter (the QT (quiet technology) helicopter was not modeled, the model was for a commonly used helicopter for air tours in HI). The higher the aircraft, the larger the footprint of the aircraft (it may be quieter, but will be heard further away). Tradeoffs – decibel heard vs. where it is heard.

Leialoha – question – what is the natural noise from the volcano? Vicki – when the measurements were taken, there was not accessible lava in the park so no decibel measurements were completed. Cindy – ocean is also very noisy. HVO scientists need to hear the volcano noises. Leialoha – noise is a human perspective – volcano and ocean are ‘natural’, helicopters are not natural noise. Need for air tours – puts flag up for her. How do you define air tours? There is a need for people to access volcano. There are many ways to think of the definition of air tours. Sacred spaces – person looking at space and feeling the feelings and we deem that sacred and need to have access to that sacred space. She has a concern regarding balance – research with turtles is an example. Very long study – at times it doesn’t balance – scientists have need to come, there are a lot of areas where turtles are but there is no research there. What happened to the food for the certain types of fish? Turtles are being researched but that is not. Practicing Native Hawaiian religion needs to be looked at. Park needs to have what they need to do.

Laura – asked Leialoha to clarify the need to access. Response – Go through that airspace to access an area. Laura - Administrative uses of helicopters is different than air tours. Cindy – how we manage our administrative flights is also being looked at.

Leialoha - Kupuna Board needs to be multigenerational. Sacredness and religion – touchy issue. Religion manifests itself in many different ways. Gathering part of process of the religion, it is the same thing. Likes that you have to register to gather plants – record showing that Hawaiians do have a religious

belief and practice. But she doesn't want an elaborate permit/process. There needs to be a real effort for park and the people to communicate because there is a lack of that. There is not one way to practice religion. Thousands of gods in the Hawaiian religion, 30 ceremonies times those thousands of gods, every family has a different way of doing things (practicing religion); think the park's relationship with natural environment is basically good. Every family is different and practices the native religion differently. We need to keep that in mind.

Laura – Asked Leialoha to clarify her previous discussion, if it was related to the first agenda item or to the ATMP.

Leialoha - Need to be careful how we do things – the religion discussion above also applies to the air tour – the air space is sacred too. Air space is noisy where she lives.

Ulu- if you pay attention to sounds, you hear them (she lives near airport - .5 miles from airport). Cindy – advised about taking pictures of tail number when they are too low. Ulu - You can become accustomed to the noise.

Keola – question on alternatives, are these what will be analyzed?

Vicki – the alternatives can change from what is in the newsletters.

Lora – comments from communities – sound concentrations are a concern.

Keola – loud over her house because they go to Pu'u O'o.

John – is there a possibility that there could be no air tours over the park?

Cindy – this is a range of alternatives and we have to have a range.

Danielle – if we didn't think it was a viable alternative, it wouldn't be presented as an option. That would be dishonest to the process and the public to present an alternative that we would not actually consider doing.

Lora – over time we have worked out a good range. No park air tours doesn't mean there are no air tours, they just won't be in the park.

Flying over communities vs. over wilderness.

Larry – no park air tours would protect the wilderness.

John – what kinds of restrictions can be put on an alternative?

Cindy – incentives in prelim alts – QT; Lora – some areas restricted to QT in prelim alts.

Keola – no alternative addresses what happens if Mauna Loa erupts. Cindy – adaptive management in one of the alternatives (Alt 3).

John – do planes count? (Answer was yes – e.g. Big Island Air has fixed wing).

Cindy – discussion of the fatalities associated with air tours, most recent was in 2008.

Have to use aircraft to do our jobs, but this document can raise level of awareness for what we do at the park level as well as the air tours.

Vicki's staff will be doing modeling on the routes, point under routes, specific locations whether under the route or not. John – how did we get the model we have now? Vicki – discussed the sound study and monitoring that was done. No sites in Kahuku because it was before we had that unit. It takes 25 days of monitoring to get good baseline. Original goal was just getting baseline (not in conjunction with air tour routes).

Route is representative – they don't fly straight in that zone on that map, it's a generalization. Model takes many different factors in the analysis – e.g. elevation, acceleration/deceleration of aircraft, terrain, type of terrain (vegetation), baseline data, etc. Gives you a noise footprint.

Lora – One thing that became evident with the current model - sound gets channeled into the crater (Halema'uma'u), just as many Kupuna have told us over time.

Cindy - Last year 52 infractions of the TFR. Many of them were military. We've been spending lots of time dealing with the infractions. Air tours were not the majority of the infractions (lava is also out of the park right now which could be why). TFR is 4,000 feet AGL over crater.

Laura/Cindy - Will the Kupuna be submitting a letter as a group or individually or both? Ulu – probably individually, she goes from her gut and her heart and will say whether she is comfortable or not. Enjoys listening to the discussion. Keola – everyone thinks differently and should make individual comments, like Lei was saying that each person thinks differently, practices religion differently, etc. The original letter was because the group felt a need to be united to the FAA person (Brian Armstrong) that was pushing things previously.

Larry – individual comments are just as important as group comments. Laura - also for 106 this applies as well (individual comments just as important as group comments).

Larry – difference with the mainland – tribes have designated lands and a spokesperson. Here all the islands are 'tribal' lands. There is no one spokesperson.

John – will do his comments and send to us. This Wed. 6:30pm he's supposed to meet with the Ka'u Civic Club – he will tell them about our meeting (ATMP). Lora or Cindy will also see about going to one of their meetings before the comment period ends. He likes how we explained the alternatives in the presentation and not just have to read the newsletter.

Keola, Laura, Lora - Make presentation stronger for Halema'uma'u and the sacredness of that area.

Keola- early on discussions when Armstrong from FAA was here, they tried to focus on Halema'uma'u.

Rita – need to keep in mind the significance of everything else too, not just the Halema'uma'u Crater, there is way more than just the crater. It's the entire landscape, skyline, in under around and over.

Lora – Challenge of the ATMP – weather (which affects flights, routes, etc) and it's a crossroads for air tours. Have to keep pulling out language for Halema'uma'u.

End of first half of meeting, second half unrelated to ATMP.

March 26, 2005

Brian Armstrong, ATMP Program Manager
Western-Pacific Region
Executive Resource Staff
P.O. Box 92007
Los Angeles, California 90009-2007

‘Ano ‘ai aloha e Brian,

**RE: Strongly, support In-Whole Prohibition on Commercial Air Tour Operations over the
Hawaii Volcanoes National Parks, (HVNP).**

Mahalo nui loa, for the opportunity to express our strong support for the **In-Whole Prohibition on Commercial Air Tour Operations** over the Hawaii Volcanoes National Parks, Air Tour Management Plan (ATMP) project description under Part 3 – Federal Action and Range Alternatives, paragraph B. Range of Alternatives, Table 1 – Potential Mitigation Measures.

We, are an informal community - based Na Kupuna Consultant Group, invited by the Hawaii Volcanoes National Park administration to assist with appropriate recommendations to native Hawaiian issues and/or concerns - culture, history, values, traditions, religion, burials, language, name places, environmental stresses, ecosystems, bionetworks, animals/plants/ invertebrates, and more within the Park. We are kama‘aina (residents) from the districts of Hilo, Puna and Ka‘u, mixed ethnicities - genders, credited with over six hundred years of experience, as well as traditional - professional knowledge.

Concerns and issues identified quantified our selection.

Sacredness of the entire HVNP from the summit of Mauna Loa, to the sea - should be acknowledged - not abused;
Spirituality of the Park, in that science and historic/culture do not mix well on the whole;
Dramatic adverse noise pollution effects on endangered wildlife and their depletion;
Health and safety issues - numerous accidents;
Prohibition of all over - flight aircraft (s), allowable height regulations, and/or training activities (exceptions emergencies - fire, rescue and/or access to “special areas” for HVNP personnel);
No air tours over the Park, Mauna Loa, all of Puna - lava flows;
Air tours take away from the intent of what parks were meant – perpetuity for future generations;
Inadequate enforcement and/or system of reporting air tour violations; and
Deficient monetary payment (s) to HVNP from air tour operators.

A. Sacredness and Spirituality

The entire Hawaii Volcanoes National Park is a wahi kapu (sacred place). From the apex of Mauna Loa - Kilauea Caldera – Pu‘u ‘O‘o, ‘Ola‘a Forest – Southwestern Rift Zone and the entire coast from Kupapa‘u Point (Puna) to Kapao‘o Point (Ka‘u) is the home of “Tutu Pele”. She is an extremely vibrant and revered deity - aumakua (family god), who has resided there for hundreds - thousands of years. Renown, world over for her volcanic phenomenal fountains, her beautiful bursts of reddish orange glows – fires – flames. To her convents she is the protector, destroyer and the creator of “new” ‘aina (lands). Romantic legends – myths, ‘oli (chants), mele (songs) and hula (dances) of “Pele”, are easily dated back to the earliest Polynesian arrivals. Her everlasting spirit and those of her ‘ohana are felt amongst the mortals, in the forest, the makani (wind), the flora – fauna, molten rock, and honua (earth) – he lani i luna (heaven above), he honua i lalo (earth below) a me o ke kai (and of the sea). She has appeared in many dreams and visions of her ‘ohana and non-Hawaiians, summoning them to her domain. Often times, it is to remedy their ills...help in healing others. She is eternal.

Stories of the ancient “peoples”, either passing through or dwelling within the Park, tell of their adventures, ‘ohana (families), labors, births, deaths, professions, sports, and wildlife as scribed in the basaltic “rock art” – petroglyphs. Discreetly, burial grounds, heiau (temples), ahu (shrines) and village sites lay distributed along archaeology structures. Occasionally, ho‘okupu (offerings) – lei pua (flower garlands) – kalo – ‘uala (taro – sweet potatoes) – pule (prayers), are left by lineal descendants in honor of their kupuna (ancestors).

B. Noise Pollution and Endangered Wildlife

The Hawai'i Volcanoes National Park is an ecological wonder, a unique habitat for indigenous bionetworks of endangered species. Countless, rare genus, vertebrates - invertebrates, birds, aquatic life, mammal, foliage, and those not yet categorized. They "often depend on specific pollinators and specific growing conditions or locations. Saving them from extinction is not only a matter of saving the plant/bird/invertebrate, but the community in which they live".

The following is a sampling of HVNP's endangered and threatened bird, animal, plant and marine species:

The current bird list begins with 'A'o (Newell's Shearwater - threatened), the Nene (Hawaiian Goose), 'Io (Hawaiian Hawk), 'Ake'ake (Band-Rumped Storm-Petrel), 'Ua'u (Hawaiian Petrel), 'Akiapola'au, Hawai'i Creeper, and 'Akepa (Hawai'i Akepa). There are twenty-six endangered birds, 8 or 33.3% confirmed and 18 or 66.7% awaiting confirmation.

*****NERC

88/30 - JUNE 1988 (selections)

Effects of Aircraft Noise and Sonic Booms on Fish and Wildlife: Results of a Survey of U.S. Fish and Wildlife Service Endangered Species and Ecological Services Field Offices, Refuges, Hatcheries, and Research Centers.

Fish and Wildlife Services/U.S. Department of the Interior

6	1	HI	1987	USFWS/ Pacific Islands SE Area Office	Military/ small jet/ helicopter	Birds/ waterfowl/ raptors/ passerines/ mammals/ bats	The Area Office initiated a formal Section 7 consultation for a proposed USAF low-altitude route in Hawaii. It is believed the route could have an adverse effect on endangered species including the Hawaiian hawk, Hawaiian goose, and Hawaiian hoary bat, as well as several species of passerine forest birds.
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<http://www.nonoise.org/library/fishwild/survey.htm>

AFESC TR 88-14 /NERC-88/32/June 1988 (selections)

Effects of Aircraft Noise and Sonic Booms on Domestic Animals and Wildlife: Bibliographic Abstracts

Engineering and Services Center/ U.S. Air Force/Fish and Wildlife Service/U.S. Department of the Interior

Sackler, A.M., A.S. Weltman, M. Bradshaw, and P. Jurtshuk, Jr.1959. Endocrine changes due to auditory stress. Acta Endocrin. 31:405-418.

Female rats were subjected to 1-min or 5-min auditory stimulation with a mean intensity of 110 dB. Intense sound stimulation resulted in weight gain reduction and serious changes in both endocrine weight and histology. Adrenal hyperplasia, partial inhibition of ovarian activity, reduction in weight and vascularity of the uterus, and a loss in liver weight were noted. Significant changes in pituitary cell type occurred. Appetite was affected in sound-stressed animals and food consumption was significantly reduced.

White, C.M., and S.K. Sherrod. 1973. Advantages and disadvantages of the use of rotor-winged aircraft in raptor surveys. Raptor Res. 7(3/4): 97-104.

... The presence of a helicopter too close to a nest late in the nesting season may force young birds into premature fledging. <http://www.nonoise.org/library/animbib/animbib.htm>

Community comment:

"It doesn't do any good to protect all this wilderness if you don't protect the air space overhead," says Barry Stokes, president of a local group, Citizens Against Noise, and a longtime Sierra Club (SC) member who lives in Volcano, Hawaii. With more than half of all helicopter tour operators, Hawaii has borne the brunt of this new travel technology." (SC Newsletter, 12/94 01/95.) <http://www.sierraclub.org/planet/199412/ftc-copter.asp>

NPC Noise Pollution Clearinghouse:

"Good neighbors keep their noise to themselves. FACT SHEET, Noise Effects on Wildlife (Excerpts)

Aircraft noise range: mild levels can increase heart rate and higher levels can do more damage to metabolism and hormone balance. Long, term exposure to noise can cause excessive stimuli to the nervous system and chronic stress that is harmful to the health of wildlife species and their reproductive fitness (Fletcher, 1980; 1990).

Ninety-eight species of birds and mammals on national park lands have been identified as threatened or endangered. The impacts on these species from aircraft noise are largely not documented. Some of the species became threatened or endangered because of loss of habitat. Further relocation necessary because of noise disturbance might not be possible for these species (National Park Service, 1994)...." <http://www.nonoise.org/library/fctsheets/wildlife.htm>

The Park's endemic nocturnal Hawaiian hoary bat (*Lasirus cinereus semothus*) is the only native land mammal in Hawaii. With a keen eye, from sunset to sunrise, it is possible to see these tiny animals.

The rare honu'ea (hawksbill turtle – *Eretmochelys imbricata*) instinctively makes its way to established sites along the Park's coast starting in April to lay their eggs. Then during late summer to early winter, the hatchlings begin their miraculous journey back to the ocean. The threatened honu (leatherback – *Dermochelys coriacea*), Kohola (whale – humpback – *Megaptera novaeangliae*), and Hawaiian Monk Seal (*Monachus schauinslandi*) are seen during their migratory quest.

Thirty-six (36) species of Odonates, an entire genus of twenty-five (25) damselflies (*Megalagrion*) unique to the islands, and two (2) endemic Hawaiian dragonflies: Blackburn dragonfly (*Nesogoria Blackburn*) and Giant Hawaiian dragonfly (*Anax strenus*) are noted. Of which, the rare *Megalagrion* is being considered to be listed under the Endangered Species Act.

Twenty-three, federally known endangered plant species, of which 17 or 73.9% are located in the Park. A few are Kihī (*adenophorus periens*), 'Ahinahina – (Ka'u silversword - *Agyroxiphium kauense*), 'Ahinahina (Mauana Kea silversword - *Argyroxiphium sandwicense* var. *sandwicense*), Uhiuhi (*Caesalpinia kawaiensis*), Ha'iwale (*Cyrtandra giffardii*), Hau kuahiwi (*Hibiscadelphus giffardianus*) and etc.

The *quiet* – natural sounds - serene – soothing – whisper of nature, rain, wind, volcano activity, bird life, the soft fluttering of tree leaves, the sweet-smelling perfume of the pua (flowers) – a'ali'i, gingers, lehua, ferns, grasses, ohia trees, the scent of the forest and gentle brush of the misty air on one's skin are offered to kama'aina (local residents) and malihini (newcomers – visitors) at the higher elevations. This is nature's perfection at its best.

By contrast, descending seaward, the landscape drastically changes. Miles and miles of black lava, some smooth others sharp – jagged - swirling, wrenching and twisting. Still, further the arid terrain opens to the kind warm ocean breezes, the smell - feel of salty fresh air, the hypnotic sound of the waves effortlessly rolling back and forth on the sand. Ah, the solitude of place, relaxation and peace.

Visitors are on "holiday" - vacation, the idea is to remove themselves from mechanical noises, no aircraft – helicopters, two-engine – single – engine over the Park. Enjoyment, recreation, education and discoveries are what they want.

C. Health and Safety

Air tour accidents of flights over and near HVNP:

1993 – 2003

5 accidents/18 fatalities

Weather may have been a factor; directional wind changes; vog; and/or mechanical problems...

<http://starbulletin.com/2003/06/16/news/story1.html>

According to the FAA statistics:

1991 –1993 there were 46 sightseeing, and rotorcraft accidents:

46 injuries/37 fatalities

Inappropriate and dangerous flying through volcanic fumes over HVNP;

Flying through volcanic fumes and low-altitudes over molten lava.

<http://www.nonoise.org/library/npreport/chapter 7.htm>

The regulation altitudes: five hundred (500) – fifteen hundred (1,500) feet and a half (1/2) mile from the boundaries do not constitute safe air space. Furthermore, a common occurrence (s), atmosphere changes: during the day, heat from the land mass moves outward to sea. As afternoon approaches it cools, the wind reverses itself and blows inland. Cloud cover, vog, poor visibility, altitude and/or direction become a mystery.

D. Inadequate enforcement and/or system of reporting air tour violations

Attempts of reporting violators are near impossible. Identification markings are not easily seen, sightings of "daredevil" acts of less than 500 feet above ground, supports disregard to FAA rules and regulations. Boundary lines go unheeded. Consequently, a major issue is lack of enforcement.

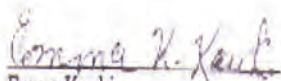
E. Deficient monetary payment (s) to HVNP from air tour operators

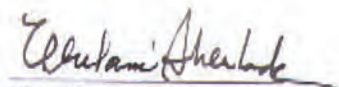
Noted, according to paragraph, Part 2 – Setting, paragraph C. Commercial Air Tour Activity and Visitor Experience 24,583 commercial air tour operations were conducted were derived from the number of commercial air tour applications received within a twelve-month period from April 5, 2000. Theoretically, revenues generated were to fund HVNP: eighty, dollars per person from Hilo airport to one hundred – sixty dollars from Waikoloa – Kona Airports, equates to substantial proceeds.

In conclusion, from the mana'o (thoughts) we have shared, the justifications we have provided, and the choice of the mitigation proposal (s), it is in the best interest of all concerned to "prohibit" all air tour operations over the 330,000 acres Hawai'i Volcanoes National Park.


Mahalo nui loa, for your consideration and support!

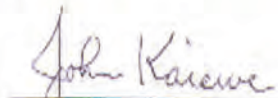
Me Ke Aloha Pumehana,


Emma Kauhi


Ululani Sherlock


Winifred "Pele" Hanoa


Pualani Kanaka'ole Kanabele


John Kaiewe


Jamie Moana Kawauchi


Fred Park


John Replogle

FAA/NPS Air Tour Management Plan Program

ADMINISTRATIVE RECORD: DOCUMENT COVER SHEET

PARK UNIT: (if copies need to be made, specify in which park unit's file the original should be placed)	<p style="font-size: 2em; text-align: center;">HAWD</p> <p>*If more than one park, place original document in:</p>
CATEGORY – Circle one: <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">Administrative Meetings</div> <div style="text-align: center;">Agency Involvement/106 Compliance</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">Public Involvement</div> <div style="text-align: center;">Park Documents</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">FAA Documents</div> <div style="text-align: center;">Air Carrier Documents</div> </div> <p>NEPA Document Chapter (<i>Specify Chapter Name</i>):</p>	
SUBJECT (i.e., "name" of document):	<p>3/14/05</p> <p>106 meeting notes re ADR regarding Alternatives Development process and preliminary alternatives.</p>
AUTHOR or MTG. COORDINATOR (name and/or agency)	<p>Nicole Rossbach - VOLPE</p>
RECIPIENTS or PUBLICATION NAME:	<p>FAA, NPS, Volpe & invitees</p> <p>Attendees</p>
DATE: (of document)	<p>3/18/05 4/11/05</p>



U.S. DEPARTMENT
OF TRANSPORTATION

RESEARCH AND
SPECIAL PROGRAMS
ADMINISTRATION

Memorandum

JOHN A. VOLPE
NATIONAL TRANSPORTATION SYSTEMS CENTER

Subject: FAA Air Tour Management Plan Sec. 106 Compliance
Meetings – Hawai'i Volcanoes National Park
DATE: March 18, 2005
LOCATION: Kilauea Military Camp

Date: April 11, 2005

From: Nicole Rossbach
To: Attendees, File.

ATTENDANTS: contact information on file at Volpe

FAA, Western-Pacific Region:	Brian Armstrong Victor Globa, Lockheed Martin contractor
NPS, Natural Sounds Program:	Howie Thompson
NPS, HAVO	Cindy Orlando, Superintendent Aleta Knight Jim Gale Catherine Lentz Laura Schuster Keola Awong
Volpe, DTS-33:	Nicole Rossbach
Invitees	J. Keolalani Hanoa, Ka'u Pele Hanoa, Ka'u Ululani Sherlock, OHA Nani Langridge, Hilo John Kaiewe, Ola'a Fred Park, Ola'a John Replogle, Ka'u Pualani Kanahele, Hilo

Attachments: Alternatives Development Report summary sheet provided to Kupuna Consultation Group, HAVO white paper.

Minutes

- I. Introductions and Welcome
 - a. Cindy Orlando initiated meeting
 - i. Everyone was sent the preliminary draft of the Alternatives Development Report.
 - ii. Here to discuss the preliminary alternatives and get Kupuna Consultation Group feedback.
- II. Review of the Act and ATMP development process (Howie)
 - a. Roundtable introductions
 - b. The Air Tour Management Act of 2000 (Public Law 106-181) was signed by President Clinton on April 5, 2000. Act's Objective: to prevent or mitigate significant adverse impacts, if any, of air tours to national parks (natural, cultural, and visitor resources).

- c. Applies to commercial air tour operators flying within ½ mile boundary of the park and under 5000 ft. above ground level (AGL).
 - d. Any ATMP must include incentives for quiet technology.
 - e. The Act established Interim Operating Authority be granted by the FAA to existing and new operators that applied for authority to fly over national parks. However, for new entrant operators the NPS must determine that there will not be a noise problem at the park prior to the FAA issuing an IOA.
 - f. May prohibit commercial air tours operations (CATOS) in whole or part
 - g. May establish conditions for the establishment of CATOS – altitudes, routes, time-of-day, seasonal, or special event restrictions, maximum number of flights, etc.
 - f.h. Review of ATMP Development Process and past meetings
 - i. Acoustical data acquisition
 - ii. Internal scoping
 - iii. Scoping meetings
 - iv. Sec. 106 initiation meetings
 - v. Internal alternatives development meetings
 - vi. Sec. 106 – alternatives review meeting with Kupuna Consultation Group (entailed within these notes)
 - g.i. Alternatives Development Process
 - i. Two step process – preliminary alternatives development and refinement of alternatives
 - ii. Reasonableness criteria – applied to preliminary alternatives
 - 1. Do the alternatives meet safety criteria?
 - 2. Do they satisfy the purpose and need as described in the NEPA document?
 - 3. Do they avoid repetition of similar alternatives?
 - 4. Are they technically and economically feasible?
 - h.j. Review of significant issues identified for the HAVO ATMP.
 - Noise (primary issue)
 - Native Hawaiian uses of park resources
 - Wildlife, including birds
 - Ground-based park visitor experience
 - Resident communities in the vicinity of the park
 - Air tour operators
 - Safety
 - Changing nature of volcanoes
- III. Commitment to Consultation (Brian)
- a. Approach to 106 – The Act requires the consideration of cultural impacts. Obligated to prevent/mitigate significant impacts, can include consideration of impacts that are less than significant and FAA/NPS will try to also mitigate impacts that may not rise to the level of significance.
 - b. Required to comply with NHPA Sec. 106 – The purpose of the meeting is to consult with the Kupuna Consultation Group as a focus group; there is a larger number of people on the section 106 consultation list. Goal is to find mutually agreeable alternatives.
- IV. Review of preliminary alternatives for HAVO (Brian)
- a. Impact evaluation – noise impacts will be analyzed as well as many other environmental impact categories.
 - b. Mitigation – the Act provides a “toolbox” of mitigation to be applied to alternatives
 - c. Common elements of the alternatives
 - i. Applicability (to commercial air tour operators within ½ mile of the park boundary and below 5000 ft. AGL)
 - ii. Safety – FAA allows pilots to operated as need for safety purposes
 - iii. Enforcement – all ATMPs will include an enforcement mechanism. FAA has authority to deal with violations. Ultimately the AMTP will be codified in civil code. Need to still work enforcement out with agencies.

- iv. Adaptive Management – all alternatives will include an element that allows re-visitation and re-evaluation of the ATMP as necessary. The ATMP will include a mechanism to accommodate changing lava conditions.
- v. Quiet technology incentives – these incentives must be a part of the ATMP
 - 1. If noise is below a certain level it qualifies as quiet technology. It is important to understand the cost for quiet technology. It can be approximately \$800,000 for an older, non-quiet technology helicopter compared to 3-4 million for a quiet technology helicopter. One half mile outside the park isn't very far. Operators can fly as much as they want, where they want outside the 1/2 mile boundary. It can be pretty noisy for communities out there.
- vi. Temporary flight restrictions for cultural events.
- vii. Temporary flight restrictions when new lava appears for safety and to allow scientists/staff to evaluate.
- viii. May be a specific need for training or interpretive guidance for air tour operators.
- d. Review of No Action and Bounding Alternatives (Brian)
 - i. NEPA requires the evaluation of the No Action (status quo). 32,000 flights authorized per year, no limitations/restrictions on where air tours can fly, maintain above ground flight at no lower than 1,500 feet with a few areas authorized for flight down to 500 ft.
 - ii. Required by the Act to complete a plan, so one will be done.
 - iii. Bounding alternatives - NEPA requires a full range of alternatives; bounding alternatives represent the ends of the spectrum.
 - 1. No flights
 - 2. No restrictions (currently parties are in agreement that this alternative does not meet criteria and it won't be carried forward for further analysis).
- e. Review of Preliminary Alternatives (Aleta)
 - i. Brainstorming process
 - 1. National Park Service staff at Hawai'i Volcanoes/experts met to discuss resources and issues and sensitivity of these resources and issues to air tours.
 - 2. Identified areas that could be or were subject to impacts from air tours – natural resources, cultural resources, wilderness, habitat, visitors, etc. Identified highest and lowest impact, how impacted, and when impacted.
 - 3. Each impact subject was GIS mapped. When the resulting GIS layers were combined into one map, the resulting shading demonstrated areas of resources and issues concentrations, potential impact areas, and the potential level of impact.
 - 4. Prepared this information for meeting with the FAA; outcome was 3 brainstormed/idea alternatives.
 - ii. Red Alternative
 - 1. Idea is to only allow flights where the active lava flows, because this is what most air tours come to see.
 - 2. Areas of potential lava flows were identified. A USGS geologist identified that there could be up to 120 flows at one time.
 - iii. Zones Alternative
 - 1. Selected sensitive areas to avoid and designated altitude restrictions on various areas. This alternative is a combination of many things.
 - 2. Brian stated that no fly zones were identified over some adjacent communities.
 - iv. Corridors Alternative
 - 1. This alternative is a combination of ii and iii. This alternative outlines flight corridors and has specific entry and exit points, altitude restrictions, and flying times.
 - v. Restrictions were discussed such as no flying before 8 or 9 AM or after 6 PM.

- V. Discussion about Preliminary Alternatives (comments made by invitees unless otherwise noted)
- a. Brian stated that the current alternatives are subject to refinement, as well as safety analysis, 106 consultation revisions, etc. He is aware of communities outside park. Now would like to hear feedback and reactions.
 - b. Keola Awong discussed the letter drafted and signed by the Kupuna Consultation Group, which supports no air tours over the park, an in-whole ban on air tours. The letter will be sent to congressional representatives next week. They identified and cited the following issues of concern within HAVO:
 - i. Spiritual
 - ii. Endangered species and other wildlife.
 - iii. Health/safety issues
 - iv. Inadequate enforcement
 - v. No payment of air tour fees to HAVO.
- Brian replied that a complete prohibition is being looked at, and will be analyzed.
- c. Cindy asked for clarification on air tour caps. Nicole replied that there could be different types of caps, one for the number of companies operating, and one for the maximum number of flights. Cindy stated that there are currently 14 companies that are authorized to fly about 31,000 flights a year. There is an opportunity to cap or not cap both operators and number of flights in the alternatives, for example, operators could or could not be frozen at 14. Air tours could or could not be capped, for example if there were only 14,000 air tours then that could become the cap. Everything is on the table at this point. Aleta commented that air tour operators had to provide the number of flights flown at the height of their operations (pre-2000) and that now air tour numbers are down.
 - d. Comment – Howie commented that noise monitoring/sampling is needed to see if the noise is within the modeled projection. If it is more or less than projection, then adjustment of air tours may be needed.
 - e. Comment – there is concern over enforcement. Flights fly low over communities, right above telephone poles; they want better enforcement of laws because nothing is working currently and this problem has been going on for years. Aircraft fly so low; it is too low and there is a problem enforcing helicopters to stay in the areas they are supposed to be in.
 - f. Comment – Hawaii state laws (citing Article 50) require that all new projects complete a cultural impact statement. You should look into this. This is a very sacred area. This needs to be evaluated because it is a sacred place for the Hawaiian people. Brian stated that they have discussed the idea of a cultural assessment, but FAA and NPS have different ideas about what that is. We talked about oral history, writing up history, etc. Would like to find out more from the Kupuna Consultation Group about this. Cindy stated that it was quite clear from the kupuna at the last meeting that a cultural assessment was needed and that is what they still want, and the NPS wants a cultural assessment. Laura stated that from an understanding of Hawaii state law and NEPA, a cultural assessment needs to be completed. Brian replied that he does not object to a cultural assessment. We can choose whatever level of cultural assessment that we want. The FAA is the lead. The NPS does have a huge interest. He wants to do the right thing. We need to figure out what a cultural assessment would look like, cost needs to be evaluated.
 - g. Comment – prefer to know the number of flights a day (as opposed to annual numbers). Cindy stated that they have some idea of this from the operators complying with and paying the park.
 - h. Aleta stated that there are currently five companies in compliance with fees. The park bases the fees on the number of flights a company takes over the park. Brian stated that this is a difficult issue because there is no reporting requirement for air tour operators; they don't need to report or keep flight records, but the FAA is trying to validate their numbers by asking the air tour operators to say how many flights they are taking. Daily activity varies and they are also trying to find out what it looks like on a "peak" day. This information will be shared with NPS and the Kupuna Consultation Group.
 - i. Comment – What is used for tax purposes?

- j. Comment – the alternative that is most palatable is a complete prohibition. It makes sense because it takes care of all the issues. In the report, there was no discussion on hierarchy of sacredness, sacred places and impacts there. Aleta stated that this was done to some extent during the alternatives development. For example, coastlines, Napau Trail, and summits of both the volcanoes (which are sacred) were established as no-fly zones.
- k. Comment – would like to add a couple of things. These two craters considered no fly zones because they are the birthplace of land. That is sacred but not the most sacred. The most sacred is where lava is coming out, the current birthplace, where new lava is flowing. The birth of new land is the most sacred. The birthplace [where there isn't lava coming out] is second in sacredness. Also, in a cultural impact assessment for the state you must consider impacts on native peoples, native practices, Feds too. If it is not done, it doesn't count. It must include certain things to count for the state. The cultural impact statement will not carry any weight unless the native views are reflected and stated within. There is no point to the meetings if we are not going to be heard and [actions] followed through. We are pouring our guts on the table. We are not being heard. We want to be heard. Being heard means negotiating and mitigating, like a marriage. We put our passion and guts on the table and then it gets watered down. Brian stated that we're [FAA] a project-oriented agency and that we have heard you. He doesn't know what the state guidelines are. He assured the group that a cultural assessment will be completed. FAA needs to seek guidance on this.
- l. Comment – What is the probability of a complete prohibition? Brian stated that they must go through the analysis process. It is still on the table and will be analyzed.
- m. Comment – There is concern over safety of helicopters. Showed an article from the paper (3/11/05) about a lawsuit pending over a crash in 2003 due to unsafe aircraft. There is concern for the safety of our rangers (park rangers) that must go out to rescue and bring out chopper. We are concerned about the life and risks of park workers.
- n. Comment – Didn't letter from kupuna state prohibiting all flights?
- o. Comment – there is concern about flights over the Red Zone, steam might affect stability of aircraft. Brian stated that flight safety is of utmost importance to FAA and it will be evaluated. Cindy asked how this is being measured. Brian said it is hard to say. Safe flying is up to pilot judgement. As a result of accidents in the 1970s the 1,500 feet [above ground level, AGL] was established. In some areas pilots can be authorized to fly below 1,500 feet [AGL]. Every location is different; an air tour operator can request to fly as low as 500 feet. Currently, helicopters are allowed down to this level over current (active) flows. The safety requirement they must follow is verifying that there is always a safe place to land.
- p. Laura asked whether there has been any consideration/evaluation of fumes, steam, sulfuric acid, etc., effects on aircraft mechanics or equipment. Brian stated that in a broader, general sense, yes. There has been some analysis of this because it affects aviation worldwide. HAVO wrote a white paper (attached) on effects on aircraft. Cindy asked if there was consultation with the park and Aleta replied no. Brian stated that it was purely a safety consideration. Cindy asked if this could be written into the plan, the arbitrary decision to fly lower to 500 ft. Brian stated that the ATMP will supercede regulations outside the park. He commented that helicopters with air tour companies may be used for other purposes other than air tours, with air tours sometimes, sometimes other uses.
- q. Comment – there is concern over the lack of payment of fees. If the operators are entering the park, they should pay a fee. If they don't pay, they shouldn't be able to fly. Cindy hopes that the FAA will assist the NPS on this in the future. Aleta commented that park staff are working with a solicitor on this and five air tour companies are paying now.
- r. Comment – there is concern that we are going through all of this process for only 14 companies. We should be able to just say no. Here we're making accommodations for only a few. Compared the situation to the west Hawai'i reef collectors. There were 23 companies, but the majority of people did not want them there. There shouldn't be flights over the park.

- s. Comment – there is concern that we are making laws for the minority.
 - t. Comment – Have to support the last two comments. We want to maintain the quality of life here and what made the park what it is today, its serene beauty. You have to get out of your car, get out of the chopper and immerse yourself in the environment. Too often we have to accommodate the minority instead of satisfying the majority. They make big bucks flying over the park. Supports a complete prohibition, no flying over park. Reference was made to a Kalapana kupuna that doesn't like overflights. She (the speaker) doesn't like them flying in their sacred space.
 - u. Brian said that I have heard you but I am paid to be the devil's advocate. He stated that given the comments of concern from the local communities, there is concern that if there is a complete prohibition over the park and the ½ mile buffer, he has a gut feeling that there will be a marked increase in the flights over the communities. ATMPs cannot regulate flights outside the buffer zone. Within 1/2 mile he has authority to control numbers of flights, routes, altitude, type of aircraft, etc. He is concerned that air tours will fly just outside the boundary.
 - v. Question – who has jurisdiction (communities)?
 - w. Comment – Cindy said that this could be controlled by some other entity. The mayor has a task force on air tours. Brian said that it is highly likely that air tours will be concentrated outside the boundary. Aleta commented that air tour companies will be looking for ways to keep making money.
 - x. Comment – That is a what if. However, if we do allow them to fly in, other aircraft could fly in, we could what if that. Our first charge is the air space. It's a given situation that flights would be on the outside. The charge is to evaluate airspace of the park. We have no control over the outside anyway. This should be a part of the analysis for the alternatives. Brian commented that this will go with analysis and the community will speak out.
 - y. Brian asked if there were any concerns over confidentiality. One reason for taking this approach to 106 is to be sensitive to the groups and the special resources. Are there elements that should not be made known to the public?
 - z. Comment – the Koa'e. Have heard about Nene but not about the Koa'e and 'Io. If you only say Nene, that is what people focus on. The others are more important to us, different status. Nene is an eating bird, the others aren't. They need to be mentioned by name. Mentioned in the cultural sections, not just the natural sections. There is concern for these fishing birds that live in the crater [as well as concern for 'Io]. It is important to maintain emphasis on all special species. Some of these species are of more significance to Native peoples. You need to look at these species from a cultural standpoint. It underscores the importance of a cultural assessment.
 - aa. Comment – Brian said that he had wanted to keep his commitment to come back; nothing is set in stone, need to work on the cultural assessment process.
 - bb. Laura requested that the no air tours scenario be presented in its own map, it wasn't referenced on a map in the packet.
- VI. Conclusion – exchanges of gratitude were offered and the meeting concluded.

Safety

U.S. Geological Survey
Hawaiian Volcano Observatory
PO Box 51, Hawai'i National Park, HI 96718
Phone (808) 967-7328 FAX (808) 967-8890

Do Hawaiian eruptions pose a threat to aircraft?

The threat posed by ash injected into the atmosphere by explosive eruptions is so well known that seven centers have been established to monitor it worldwide.

Jet engines run hot enough to melt any volcanic ash they ingest. Engine parts get coated and openings get clogged, resulting in the complete shutdown of the affected engine. This is of enough concern to commercial airlines that the ash-threat centers maintain vigil, detecting and tracking volcanic ash clouds in order to redirect air traffic. It remains one of the goals of the USGS to improve aircraft safety from the threat of volcanic ash.

Hawaiian eruptions are most often effusive and erupt lava, but they can also be explosive. Kilauea had a series of ash-producing eruptions between 500 and 200 years ago and, most recently, in 1924. Anecdotal evidence suggests that Mauna Loa erupted ash in 1868. Obviously, explosive eruptions of Hawaiian volcanoes are much less frequent than lava-producing eruptions, but they do happen. Over the last several thousand years, Kilauea has erupted explosively about as often as has Mount St. Helens. Therefore the probability of an ash-producing eruption in the Hawaiian Islands is low—about the same as it is for Mount St. Helens.

Explosive Hawaiian eruptions are easily capable of putting ash into the atmosphere at all elevations at which commercial aircraft fly. The ash produced by at least one of the Kilauea events 200-500 years ago is believed to have reached altitudes of 9 km (30,000 feet) or more. One of the last eruptions in this series in 1790 produced an ash column that probably topped 5 km (16,000 feet). Of course, these events were slightly before aircraft were perfected, so those eruptions posed no threat. The most recent ash-producing eruption of Kilauea in 1924 deposited significant amounts of ash 40 km (25 miles) away.

In the unlikely event that we do experience an explosive eruption, the threat to aircraft will be defined by how wind carries the ash and gas. Normal trade winds would carry most of this ash west of the Big Island, possibly affecting air traffic to the South Pacific and South America. If the ash column rises above about 6 km (20,000 feet), ash would get into the upper wind pattern and be carried to the northeast. Kona winds would also carry ash clouds to the north. Ash dispersal to the north could disrupt normal inter-island and mainland air traffic lanes.

In terms of everyday operations, explosive Hawaiian eruptions pose infrequent but significant threats to aircraft. Effusive eruptions, which are much more frequent in Hawai'i, also produce airborne particles, but to much lower densities than explosive eruptions. The only incident of aircraft problems due to Hawaiian eruptions was the crash of a Bell 206 helicopter in November 1992 in the crater of Pu'u 'O'o. The helicopter, which was carrying a film crew from Paramount Pictures, flew through the volcanic gas plume. The plume is known to be highly corrosive and low in oxygen, and the helicopter's engine failed as a result of ingesting volcanic gas.

The threats posed to aircraft by effusive eruptions are just as severe as those posed by explosive eruptions, but only for the area immediately around the vent or vents. If you were wondering who would pilot a helicopter through the plume, rest assured that no local pilot would agree to do it. The film company brought in a pilot from the mainland to get what they needed. The helicopter

made a hard landing inside the crater in Pu'u 'Ö'ö, and all inside were eventually rescued. And--you guessed it--this event was made into a TV movie.

Activity update

Eruptive activity at Pu'u 'O'o continues. Lava in the Banana flow, which breaks out of the Mother's Day lava tube a short distance above Pulama pali, has been visible between the pali and Paliuli for the past several weeks. The viewing during darkness has been good but distant. Eruptive activity in Pu'u 'O'o's crater is weak, with sporadic minor spattering.

No earthquakes were reported felt on the island during the week ending August 25.

Mauna Loa is not erupting. The summit region continues to inflate slowly. Seismic activity was notably high for the fifth week in a row, with 31 small earthquakes recorded in the summit area. The activity was lower than during the previous week, however, when 80 earthquakes were recorded. Most of the earthquakes are of long-period type and deep, 40 km (23 miles) or more.

Visit our website (hvo.wr.usgs.gov) for daily volcano updates and nearly real-time earthquake information.

This article was written by scientists at the U.S. Geological Survey's Hawaiian Volcano Observatory.

Alternatives Development for Hawai'i Volcanoes National Park

Alternatives Development Process

Alternatives development occurs through a multi-step process. First, a list of significant issues is identified through background research and the scoping process. This list, along with the bounding alternatives (1. no restrictions on air tours, and 2. no commercial air tour operations) which identify the bounds on the range of alternatives, serve as springboards for brainstorming other alternatives. NPS and FAA subject matter experts for each of the significant issues identified, along with project personnel, then meet and determine preliminary alternatives that address the significant issues. Each preliminary alternative developed is subject to the screening criteria, ensuring that it is a reasonable alternative. Finally, the last step is to receive and incorporate comments from consulting parties on the preliminary alternatives.

Issues List for Hawai'i Volcanoes:

- Noise
- Wildlife, including birds
- Native Hawaiian uses of park resources
- Resident communities in the vicinity of Hawai'i Volcanoes
- Ground-based park visitor experience
- Air tour operators
- Safety
- Changing nature of volcanic resources

Screening Criteria

1. Is it safe?
2. Does it satisfy the Purpose and Need for Federal action (as described in the NEPA document)?
3. Is it technically and economically feasible?
4. Is it too similar to other existing alternatives?

Alternatives Development Meeting (ADM) and Report (ADR)

A two-day ADM for Hawai'i Volcanoes National Park (Hawai'i Volcanoes) was held on January 12-13, 2005, at the Kilauea Military Camp. The purpose of the ADM was to develop preliminary alternatives. Participants in this meeting comprised a team (the Alternatives Development Team, or ADT) of experts with representatives from the Federal Aviation Administration (FAA), National Park Service (NPS), and Volpe National Transportation Systems Center (Volpe Center). The ADT consisted of experts on park-specific issues (e.g., wildlife biologist, volcanologist, acoustician, cultural resources manager), NEPA, and flight safety, as well as staff to facilitate the meeting and take notes. An ADR, detailing the outcome of the meeting, was drafted and sent to the park on March 4, 2005 for distribution to consulting parties.

Common Elements of Alternatives

All alternatives incorporate certain elements as prescribed by other regulations or management plans. These elements include:

- Applicability – applies to all commercial air tour operations conducted over or within ½ mile of the boundary of the park.
- Other Federal Aviation Regulations – commercial air tour operators must continue to comply with all applicable FAA requirements.
- Immediate, temporary flight restrictions over new lava – NPS and FAA would consider how to allow air tours over these areas.
- Enforcement – will be addressed in each alternative, and will be determined by NPS and FAA.

Additionally, all preliminary alternatives brainstormed at the ADM address the following issues:

- Monitoring and adaptive management – the ATMP will be re-visited periodically in order to gauge its effectiveness.
- Quiet technology – the Act requires that each ATMP include incentives for the adoption of quiet aircraft technology
- Managed growth stipulation and maximum operations caps – decommissioned aircraft will be replaced by similar or quieter technology. Expanding fleets will also utilize quiet technology. The FAA and NPS will develop a maximum activity cap for each park.
- Temporary no-fly periods for special events – if specific events are identified, temporary restrictions may be applied
- Interpretive guidance – NPS may require air tour operators to obtain guidance, training and/or media from the park.

Alternatives Comparison for Hawai'i Volcanoes

Preliminary Alternatives	Meets criteria?	Number of Operators	Number of Operations	Operating Parameters
No Action	Required by NEPA	14 existing operators. Assumes no new entrants.	31,381	The Act has effectively capped operations based on levels reported in 2000. This would continue under the No Action. Operators must only abide by SFAR 71, but most operators abide by a voluntary agreement to not fly above Kilauea Caldera. <u>No-fly zones:</u> • Kilauea Caldera (informal) <u>Fly zones:</u> • All of the park and ½ mi buffer
Red Alternative	TBD	14 existing + all new operators (no caps)	Maximum activity caps, to be determined, will use adaptive management to ensure no significant impacts will occur	No-fly zones will be in place over the majority of the park, including the ½ mile buffer. However, flights would be allowed over specific zoned areas where red lava emerges or is emerging (e.g. currently, the Pu'u 'O'o area). If new active lava areas are created, the no-fly zones over those areas will be re-considered and potentially lifted, barring no other expected significant impacts. <u>No-fly zones:</u> • All of the park, except active lava <u>Fly zones:</u> • Active lava sites and routes to and from sites
Zones Alternative	TBD	14 existing + all new operators (no caps)	Maximum activity caps, to be determined, will use adaptive management to ensure no significant impacts will occur	The airspace over the park is divided into fly and no-fly zones, with a minimum flying altitude of 1500 ft AGL, with specific exceptions. A minimum of 2000 ft AGL will be observed over Kahuku Forest, Mauna Loa Lookout, Kipuka Ki and Kipuka Puaulu, and a portion of the northern Ka'u Desert. A minimum of 1000 ft AGL may be observed over the Ka'u Desert west of Hilina Pali Road, Hilina Pali Overlook, and Ka'aha Trail. A minimum of 500 ft AGL may be observed over Pu'u 'O'o. <u>No-fly zones:</u> • Park's southwest and southeast boundaries' ½ mil buffer (near Kahuku Ranch and near Pu'u 'O'o) • Mauna Loa summit above the 12,000 ft MSL contour • Red Hill wilderness area (2 mi diameter) • Kilauea summit, Pu'u Huluhulu and Napau Trail corridor area/ Ainahou Ranch area • Coastal area located at the end of Ka'aha trail to just east of Apua Point Wilderness Camp <u>Fly zones:</u> • All areas not specified above
Corridors Alternative	TBD	14 existing + all new operators (no caps)	Maximum activity caps, to be determined, will use adaptive management to ensure no significant impacts will occur	Most of the airspace over the park would be a designated no-fly zone, with the exception of a few "corridors" of airspace that allow commercial air tours to fly at a minimum altitude of 1500 ft AGL until they reach Pu'u 'O'o, where they may fly as low as 500 ft AGL. <u>No-fly zones:</u> • Most of the park <u>Fly zones:</u> • Specific 2 mi (approximately) wide corridors spanning the park's key features
No restrictions*	No	14 existing + all new operators (no caps)	Unlimited; assume 31,381 + 4% growth/year	No restrictions beyond SFAR 71 would apply. Operators still may (or may not) voluntarily agree to not fly over Kilauea Caldera. <u>No-fly zones:</u> • None <u>Fly zones:</u> • All of the park and ½ mi buffer
No flights*	TBD	0	0	No commercial operations would occur in the airspace below 5,000 AGL over and/or within ½ mile of the boundary of the park. <u>No-fly zones:</u> • All of the park and ½ mi buffer <u>Fly zones:</u> • None

Brainstormed alternatives

*Bounding alternatives

No Pele, No Ko'u Akua La

A Brief Articulation of the Sacred Ecology & Geography of Pelehonuamea

Prepared for Hawai'i Volcanoes National Park
Cultural Resources Management Unit

Created by

Kekuhi Keali'ikanakoleohaililani, M.A., Kumu Hula
Genealogical descendant of the Fire Clan

With help from Keola Awong, Cultural Resources

Supervisor, Laura C. Schuster, Chief of Cultural Resources Management

September 2007-June 2009

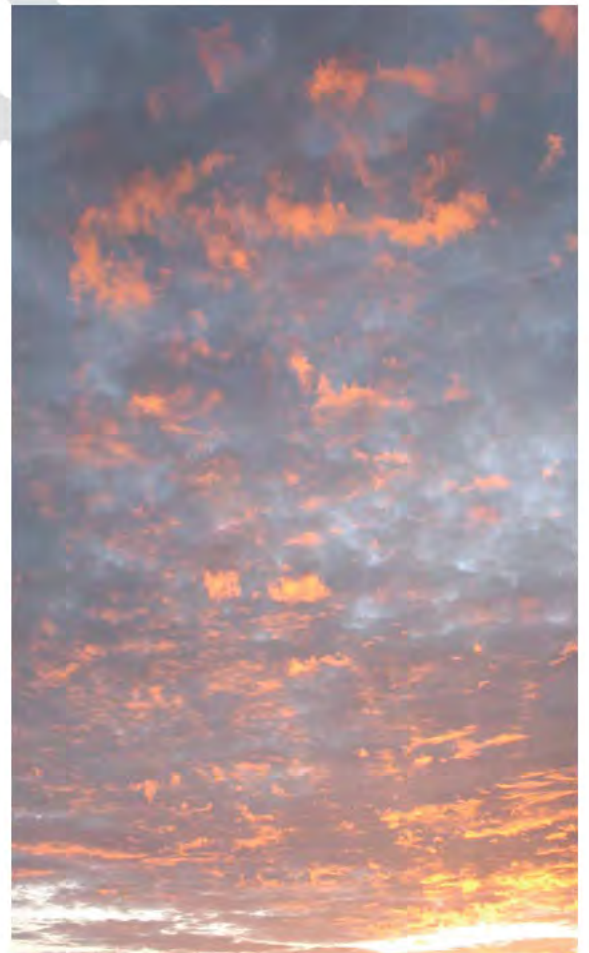


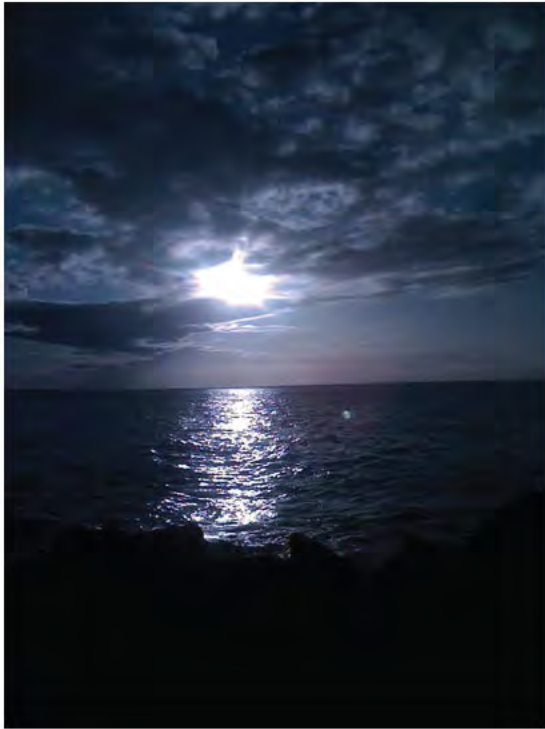
E Pele e, huli ka la
E Pele e, huli ka po

Volcanic activity transforms
day into night

E Pele e, moku ka pawa o ke alaula
E Pele e, hemo ka alihi o ke alaula

Causing predawn darkness to recede and
horizon's edges withdraw...it is Pele





E Pele e, Hi'ikeakaikamalamalama
Pele, your reflection is the light

E Pele e, ka'uka'uli ana 'oe
E Pele e, 'uhi'uha mai ana 'oe

Advancing in rhythm, your
surging volcanic fires are heard





E Pele e, e ala mai 'oe!
Oh Goddess, Awaken!



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Na ‘Olelo Mua: An Overview

Just as the dynamics of the landscape changes, so has the landscape of this document. I suspect an understanding of this information will continue to change, as we understand more of the Pele through our proximity to her landscape and our understanding of the textual knowledge observed and documented by our kupuna and inspired by our natural world. Although the intent and the cultural anchor of the document has remained the same, the way the information is presented has changed as new information is revealed.

The Caveat

Before you, lele kawa or plunge into this work, I would just like to recreate the platform from which this written work is created. The actual articulation of the processes that are informed by the documented records of Pelehonuamea has taken 30 years to understand; and, still there are many obscurities that will take another lifetime to understand. Like any other life process of mythic proportion, the Pele in the context of her landscape can be understood best as practice, if indeed, the practices are embodied and experienced at a particular place and space. Having been trained in the formal learning of Halau O Kekuhi for 35 years, and having been introduced to the Pele, as my ancestors were before me, has, by default, brought me into a personal relationship with the Pele landscape. I am not talking about crazy lady who can talk to Pele directly; I am talking about understanding the current reality of how and why certain ecological cycles impact us in Hawai’i. The information I share with you is grounded in a familial context through my Puna and Ka’u relations. My exposure to other fire people of the Pacific Rim has afforded me a greater understanding of our Hawai’i Pele through a wider context. I am not a social scientist or a natural/earth scientist. I am not a specialist in linguistics, interpretive symbolism or information technology. Although I am educated in contemporary institutions of knowledge, it is my training in hula, my familial ties, my observations and experiences in this locality, my training in ritual and interpretation of the Pele records, and my personal curiosities as to the

ecological cycles of our Hawai'i landscape that have prepared me to make this offering of traditional knowledge. My ancestors have both lived and died by the Pele for as long as volcanic processes have been a part of our shared oral history. It is still my grandparents, my parents, uncles, aunts, and this island home who have offered me the best context from which to underpin my current understanding of the sacred ecology and geography of the Pele processes.

Because of the ontological nature of the information and the platform from which the information is documented, it is very difficult to focus on just the air tour issue as a disconnected issue. The overarching concern is Pele's sacred ecology and geography and how being in Her space is a sacred experience no matter who or where you are. That can only be understood if we begin by first reorienting the readers to a different lens with which to really understand the worldview being presented from a Hawai'i epistemology.

It occurred to me quite early on, and more recently, that if this iteration of the facts could serve as more than a tool for thwarting inappropriate air tours over and through the Pele's sacred landscape, that it could be used as a basis for understanding the phenomenon of Pelehonuamea as it relates to the protection and revitalization of other landscapes within the Pele's domain. Better yet, the information can grow and develop into more areas of understanding as the need arises from appropriate land use, to resources stewardship, to interpretation of sites, traditional, as well as contemporary practices, to interdisciplinary models for observing and reporting not only the land, but the sky as well.

Format

This document, in its final form, is wholly dedicated to understanding the sacred ecology and geography of the Pelehonuamea landscape and her sphere of influence. This documented is named "No Pele, No Ko'u Akua La E" for the same reason that we name other objects of value. As an offering of value, this brief document has different characteristics and is formatted so it can be used in several different ways.

1. This Part, Na ‘Olelo Mua: An Overview, for example could be relocated and used as an overview or companion to any one or more sections of this document. It is an important, but brief summation of why the text is created the way it is.
2. Part I: Introduction to the Air Tour Management Plan. This piece serves one particular purpose and can be removed to change the focus of the document as needed.
3. Part II: Native Hawai’i Worldview can be broken down and pulled apart for the purpose of focusing on specific topics like: how we define Environmental Kinship, or, how we categorize certain elements/gods, or, how we learn to inquire into certain chant texts for information. The reader should be able to take certain sections (as a whole) out of contexts to use as reference for other needs because the information is general enough. For more information and guidance as to how best to apply these topics to a particular study, contact me.
4. Part III: Pelehonuamea is pretty specific to the interactions of the volcano family and their sphere of influence (their ecological relations). Although the area for this report has to do with a particular geography, the Pele records, in themselves, cover a vast geography and with a little more inquiry, can be applied to the whole of our islands and beyond. As I explained above, the Pele (fire/volcanic) traditions have touched the entire Pacific Rim and therefore has oral histories and relations that span beyond Her current domain. Again, specific topics such as: ecological relations, how to inquire into certain texts for information, the cyclical categorization of certain resources/elements, the place names of this area from Poupou to Ka’ala’ala, and the hula as practice section can all be applied to particular studies. Contact me for guidance or questions.
5. Part IV: No Pele, No Hi’iaka, Ka Honua Nei, Ka Honua Lewa, Ka Lani I Luna, is perhaps the only section that cannot stand alone. It is related closely to Part I and is, obviously a reiteration of that section.

To conclude, the format of this document affords the reader/user multiple use of the information. From an expanded view, any section of this document could be used as a point of entry for a number of purposes because the articulation is general enough to stand alone, yet the specificity to the Pele's homeland allows the information its individuality as belonging to the active landscape of Pelehonuamea. This document hopefully does more than report, it teaches.

'Eli'eli kau mai! Dig for profundity!

DRAFT

No Pele, No Ko'u Akua La E: Part I

Introduction to the Cultural Assessment for the Air Tour Management Plan

By

Kekuhi Kealiikanakaoleohailani

Leo Kupuna

The dialog you are about to read is one of many discussions that took place between Hawai'i Island elders and respected community members of the Hawai'i Volcanoes National Park (HAVO) Kupuna Consultation Group HAVO park employees, and representatives of the FAA during an Air Tour Management Plan (ATMP) consultation process on July 13, 2004 and March 18, 2005. **Follow up Kupuna Advisory meetings on the same topic occur again in 2007, 2008, and 2009.** A copy of minutes is filed with Keola Awong, Cultural Resources Management, and Kupuna Advisory Convener.

Pele Hanoa: “we must protect the park because it is sacred, both below (on the ground) as well as above. The park is not a place to make money to destroy what we have been protecting.... helicopters and other aircraft should be forbidden not only because of the noise but also because there have been too many accidents...Keaukaha is an example of being so close to the airport and the huge impact the noise has had on that particular community.

Brian (FAA representative): “Is there an area that is more important to you or is it the entire park?”

Pele Hanoa: “Mauna Loa to the ocean.”

Jamie Kawauchi: We have witnessed changes in the park because of disturbances. Take what we say as information worthy of protection. Protect for our future generations. I agree with Pele and feel the present height levels [elevation for over flights] are still not good enough and all types of aircraft have a negative impact on all areas of the park.”

Ulu Sherlock: “We shouldn’t compare bus tours and air tours. Bus tours are more controllable. At public meetings you won’t get people to share; you need to have interviews with practitioners that have been raised here and see the changes. I have the impression that my info is going to you [Brian] and going no where else...”

Kupono [McDaniel] comments: “From a Hawaiian perspective, natural resources are culture. You can’t get away from a helicopter like you can a bus.

Brian comments: “It is possible to identify routes that can be isolated from other areas to provide some isolation from noise.”

Pua Kanahele stated: “We don’t want an ATMP as it will not benefit Native Hawaiians and it will not benefit the natural life here and it will not benefit the park. We are in conversation with you because you already have something in mind.

Brian commented: “Congress gave us the authority to ban air tours over the park.”

Pua Kanahele: “That is what we want, no air tours. I can give you chants saying where Pele lives, this is the residence. They can do whatever they want outside. Over the park includes

Mauna Loa, all of Puna and lava flow areas within the last 200 years... tours at Mauna Kea and the air spaces protected and managed over Pōhakuloa is a potential solution to protect the park areas.”

Pele Hanoa: “You can’t compare with other parks. Pele is alive and growing. Our deity is still here, still flowing. You can never tell where she’ll be up next.”

John Replogle: “NPS’ initial intent on setting aside land in perpetuity was for future generations to enjoy on the ground. There should be no air tours at any park, because they take away from the intent of what parks were meant to be for. A small group of people are making money flying over the park. Our land is so limited. People are coming here in droves.”

Emma Kauhi: “...for almost a hundred years she has heard that it is a place to be observed and not to be abused. Pele said this is the only place where our deity is still alive”

In conclusion, Brian stated that he has heard the overall message from the Kupuna group which is to do away with air tours altogether in the park.

Brian: “We’ve heard the message about sensitizing the public to issues/ we heard the message about the study.”

March 18, 2005

***Kupuna Advisory Council
ATMP Consultation Meeting***

Keola Awong reads a letter (a copy of the letter is filed at CRM) that was drafted by the Kupuna Consultation Group, which strongly supports in-whole ban on air tour over the park. The letter identifies the following issues of concern; spiritual, endangered species, health and safety, inadequate enforcement and no payment of air tours currently flying over HAVO.

Keolalani Hanoa: “...enforcement; Ive seen choppers flying right above telephone poles. How do we get enforcement of laws? Nothing seems to work it has been an ongoing problem for years. I am a practitioner and that in the Hawaii State laws, article 50 require that all new projects complete a cultural impact statement. This needs to be evaluated because it is a sacred place for Native Hawaiians.”

Pualani Kanahele: “The alternative that is most palatable is a complete prohibition. It makes sense because it takes care of all the problems. In the report there was no discussion on hierarchy of sacred places and impacts there.

Aleta [?]: “This was done to some extent during the alternatives development, we identified that the summit of Maunaloa and Kilauea are sacred and the coastal area.”

Pualani Kanahele: “I would like to add a couple of things. Craters are sacred because it is the birthplace of land. That is sacred but not most sacred, what is most sacred is the current birthplace, where new lava is flowing. The birth of new land is most sacred. Also in a cultural assessment you must consider impacts on native practices. The cultural impact statement will not carry any weight unless the native views are reflected and stated within. There is no point to the meetings if they are not going to be heard and followed through. I am afraid that what is put on the table is being watered down!”

John Raplogle: *“We are going through all of this process for only 14 companies. We should be able to just say no. Here we are making accommodations for only a few, I’m for prohibition, no flying over the park.”*

DRAFT

Introduction

The voices above belong to the revered kupuna of the Kupuna Consultation Group. They are: Kupuna, Aunty Emma Kauhi, Aunty Pele Hanoa, Pualani Kanahale, Aunty Ulu Sherlock, John Rapaglo, and Jamie Kawauchi, the eldest in her late eighties (80's) the youngest in her mid-fifties (50's). As individuals, they make up a diverse cross section of scholars, community leaders, land use activists, kumu hula (hula resources), mana leo (native speakers of Hawai'i language), celebrated weavers, conservationists, Hawai'i cultural education activists, Hawai'i cultural practitioners, and all of them, teachers. As individuals they are all well known locally, state wide, nationally, and internationally. As a group, they are a powerful force and ethically bound to the quality of life that is defined by the health of their Hawai'i Island, specifically the Pele landscape. Most of them are natives of this land, genealogically and geographically tied to Puna and Ka'u. Most have lived and worked in the face of the volcano all of their lives. They are not employees of the Park. They were selected by the Hawai'i Volcanoes National Park for their longevity, experience, and depth of knowledge of this area called 'Aina A Ke Akua E Noho Ai or the land created and belonging to the Deity. The Kupuna Advisory Council, in the Hawai'i mythical sense, are the human manifestations and the voice of the landscape of the goddess!

The direction of this document takes the counsel of the Hawai'i Volcanoes' National Park Kupuna (elder) Advisory Council into serious consideration (the document, History of Kupuna Advisory Council by Keola Awong, is available in CRM files). The wisdom, the passion, and the lived experiences of the council tell us, in no uncertain terms, that the goddess Pele is alive, and that her landscape is sacred from Mauna Loa to the ocean. Their fiery recommendation echoes only one alternative, no air tours. Consequently, it becomes the duty of this reporter to reveal as much information as possible in an attempt to explain the inherent connection between our kupuna and the deity they call Pelehonuamea. Hence, the task of this document is to cause understanding to emerge through a Hawai'i methodology based on authentic, systematic, and empirical evidence available in

Hawai'i traditional knowledge. Hawai'i traditional knowledge is underpinned in three main sources: in the lived experiences of the practitioner, in the skill of empirical observation, and embedded in poetic and narrative texts. These sources articulate the Hawai'i person's collective and individual experiences.

The purpose of this narrative is to explicate ancient and contemporary native Hawai'i traditional knowledge, beliefs and practices and the potential impact of air tours on those practices, moreover, the potential impact of air tours on the sacrosanct nature of Pelehonuamea.

Pelehonuamea is the premier female volcano deity of these islands from Kanemiloha'i (Kure) in the Northwest to Hawai'i Island in the Southeast. Subsequent to 'Aila'au, Pelehonuamea and her relations enter into the Hawai'i reality via Kaiakahinaali'i (an immense wave). Up until the present day, oral iterations of Pele's family and their transpacific travels long before their arrival here in Hawai'i exists elsewhere among our Pacific cousins. Hawai'i IS their final destination in this millennium. The arrival of the fire traditions of Pelehonuamea, of Haumea, of Lonomakua, brings into the Hawai'i consciousness fundamental relationships between primary elemental phenomenon and all their manifestations. The psychological and physical longevity of the Pele traditions has to do with

No Pele, No Ko'u Akua La: Part II

Native Hawai'i Worldview

By

Kekuhi Kealiikanakaole

A Brief Introduction to Native Hawai'i Worldview

A national Native Hawai'i worldview is not formalized in any one document, nor orally sustained in any one family practice or in any single chief's genealogical record. The general consensus based on documented information regarding the situation of native Hawai'i culture, life ways, and practice is that it is in recovery, when in fact, such traditional knowledge has never been lost. Many times it seems to the person studying Hawai'i culture from a distance (and in many cases among native Hawai'i communities) that the material culture is all there is left, when, again, the dynamics, the ethics, ancestral memory, hence, the non-material culture of native Hawai'i practice are still alive and well in family traditions, in our narratives and poetic texts, and in our ancestral psyche. The 4, the 400, the 400,000 gods are very much embedded, as they have always been, in every aspect of our macrocosm. However, very little is openly shared, documented and articulated about how, why, when, and where Hawai'i natives continue (or discontinue) to practice their subtle peculiarities when it comes to participating in the Hawai'i landscape.

The Fundamentals

In this section we will briefly discuss the fundamentals of the Native Hawai'i worldview beginning with a short explanation, meant to define and not confine, the native Hawai'i person's world of objects. Then, I will offer three general statements and briefly describe the characteristics of these statements. As we progress through this document, let us keep the three general, yet fundamental statements written below in mind, for they feed the overarching explanation of why and how the elders of the Kupuna Consultation Group feel about their profound relationship with this place, 'Aina A Pele E Noho Ai (HVNP).

We cannot escape the fact that the people who will read this document is composed come from very different landscapes, cultural groups, and languages that make sense of their social-ecological relationships in different ways. The cultural objects of the Hawai'i native island community and the values placed on those objects are unquestionably varied from the cultural objects of a continental

group. This is a primary consideration in the understanding or not understanding of the information presented in this document. The Hawai'i native's social-ecological worldview can be understood in a universal way through this excerpt from Herbert Blumer, scholar of symbolic interactions. Dr. Blumer writes (1959):

" Human beings are seen as living in a world of meaningful objects....This world is socially produced in that the meanings are fabricated through the process of social interaction. Thus, different groups come to develop different worlds-and these worlds change as the objects that compose them change in meaning....To identify and understand the life of a group it is necessary to identify its world of objects...in terms of the meanings objects have for the members of the group."

In observing the objects of the Hawai'i native's organic lived-world, keep in mind that objects include things, persons, places, spaces, and thought in the natural world that:

- Have animate & inanimate qualities
- Refer to conscious and unconscious processes that include ancestral memory and dreaming
- Include the notion of time and space as a cyclic process
- Are both material and non-material in nature
- Occur as individual entities with particular functions AND interacting with other objects

Now let us proceed in the explanation of the most basic ethos in terms of the most primary objects that define the life, hence, worldview of the native Hawai'i person. Those objects are natural environment, family, and deity; more precisely, natural phenomenon as family, deity as family, and natural phenomenon as deity. I will offer a brief definition of each of the following statements.

All natural phenomenon (including the kanaka) are intimately connected

The resource is the deity

Reciprocity is our bond

ALL NATURAL PHENOMENON ARE INITIMATELY CONNECTED

Let us take the first step in offering the broadest lens possible in an attempt to explain the dynamic and multi-dimensional Hawai'i native perspective at the most basic level. That being said, it becomes necessary to deconstruct popular and generalized accounts of native Hawai'i culture, and re-conceptualize culture in terms of traditional knowledge, practice, and values from a worldview that includes natural phenomenon as a part of the socio-ecological world of relations. In defining the social-ecological world of relations, let us begin with the statement, "all natural phenomenon (including kanaka) are intimately connected".

From an island point of view, "all natural phenomenon are intimately connected" is an everyday reality. Our idea of life cycle is not based in the linearity of living, but a literal "cycle" of living, and reproduction, and dying. Even in death we are contributors to living. Our physical bones return to Papa, to feed the earth, and the mana of our wailua or spirit is recycled into one of many other natural phenomenon, be it animal, vegetable, mineral, elemental, or water. In this way, there is no absolute beginning or finality of ending; there is only the beginning and ending of cycles. There is no forgetting exactly who we are biologically, physically, psychologically, and genealogically because we are alertly aware of the dynamic continuity of our relationships. And therefore, recognize that relationships between the animate and inanimate, visible and invisible, human and nature, and between the conscious and sub (un) conscious are inherently indivisible. The term 'ohana applies to this relationship. This, above all, is the single most important element relating to the native Hawai'i perspective. However, what I have described above is the fundamental element of Hawai'i culture that is least understood by others who function outside of this reality.

THE RESOURCE IS THE DIETY *embodied in space, place, and objects*

For the proto-historic as well as the contemporary native Hawai'i islander, our landscape, therefore our resources are governed by five of our most influential natural forces that affect our life systems: the ocean (Kanaloa), the elements within the dome of our universe (Kane- the sun, air currents,

and like features) our high mountains (for Hawai'i island, Maunaloa & Mauna kea), volcanic activity (the Pele), and the kanaka. According to traditional knowledge, the primary worldview of the Hawai'i native is fundamentally understood through our relationship with these elements as nurturer, as family, as primary resource, hence, as deity. The main idea here is to know that according to our knowledge and belief that the resource is the deity, consequently, the kanaka or human person comes into daily contact with the god. By default (and by no choice of our own) of being located in Hawai'i, when we engage in the most natural or mundane tasks, we interact with a myriad of gods and god lings. When we breath air, we embody Kane; when we breath sulfur, we embody Pele. When we swim, we return to the bosom of Kanaloa; when we drink water from the faucet, we ingest Kane and Kanaloa; when we farm, no matter what we farm, we take in nutrients of the earth mother Papahanaumoku; when we encounter certain images in the dream state, we experience Moehaunaiki or Moemoe'a; when we step out into the rain or are fortunate enough to catch a glimpse of a rainbow, we are experiencing a many elements, many resources, many deities all at once. The notion of "the resource is the deity" positions the deity in an immediate relationship with all that we do, and therefore, forces us to be in constant practice of certain protocols and compliance that allows us a degree of access to the resource.

RECIPROCITY IS OUR BOND

I ola 'oe, I ola makou nei ~ my life is dependant on you, your life is dependant on me

All natural phenomenon (including the kanaka) possess a certain degree of sacredness or kapu. Kapu is a state of sacredness that defines the prohibitions with respect to a particular entity and requires particular protocol in order to access the particular resource or entity. The degree of kapu aligned with each entity is dependant on the significance of their function required for life in these islands. The more required their function is for living, the more kapu is associated with their being. The nature of the exchange is directly proportionate to the significance and the intention of the exchange. In other words, if I were felling a whole 'ohi'a tree, whose life many are dependant upon, for a ki'i (carved image), my exchange would require much more effort than if I were to ask for a liko or bud to make a lei from the same tree. In both cases the outcome honors the 'ohi'a and the mana of the 'ohi'a is maintained,

transported, and broadcast more widely. But the ultimate impact is the sacrifice of the body of the tree for another function. Therefore, one body must replace the one lost.

In order to access a deity or resource, one may engage in the act of reciprocity. Reciprocity is a degree of exchange that allows relationships between natural phenomena's to exist in a fairly consistent balance. Henceforth, each individual entity, be it kanaka, wind, animal or lava, act and react to a constant chaos of exchanges that occur every millisecond in our Hawai'i universe. Reciprocity and exchange can occur in many forms: acknowledgement, sacrifice, communication, offerings, and the simple awareness of knowing one's boundaries. Some forms of exchange occur naturally, for instance, a heavy uahi Pele or vog followed by a clarifying rain. Some forms of exchange occur in the appropriation of natural resources and the management of those resources for continual production and reproduction. Other forms of reciprocity occur through the offering of one form of the deity in exchange for another. The most valuable and extreme forms of reciprocity require a life for a life. Yet, some forms of reciprocity require prescribed prayers, offerings, and commitment. Whatever the case may be, physical reciprocity, exchange and sacrifice are not taken lightly. Because we are intimately connected, the physical removal, loss or abuse of any resource not only disturbs the immediate system in which the entity resides, but also causes psychological damage to the surrounding environment. Our Hawai'i universe is a thinking, feeling universe in which even the smallest pebble is a part of our familial system thereby binding us to the laws of kapu. All entities possess a certain degree of sacredness. To respect each individual's kapu sustains our life

Environmental Kinship: A Social-Ecological Reality

When using terms that refer to human centric qualities like familial, or individual, or the relative pronoun who, or the values placed on the word relationship, the Hawai'i perspective does so by including natural phenomenon as part of the organic lived world. So, in a socio-cultural context, a Hawai'i perspective of family or *'ohana* will include: biological and/or adoptive parents, all relatives dead or alive, a particular shark guardian, the 'i'iwi bird, the taro plant, lightning, perhaps, or a particular

rock formation. Puku'i and Handy (1998) so expertly and succinctly state in *The Polynesian Family System in Ka'u, Hawai'i*:

“A Hawaiian's oneness with the living aspect of native phenomena, that is, with spirits and gods and other persons as souls, is not correctly described by the word *rapport*, and certainly not by such words as sympathy, empathy, abnormal, supernormal or neurotic; mystical or magical. It is not 'extra-sensory,' for it is partly of-the-senses and not-of-the-senses. It is just a part of natural consciousness for the normal Hawaiian-a 'second sense,' if you will...but it is not 'sight' only, or particularly, but covers every phase of sensory and mental consciousness....To comprehend the psyche of our old Hawaiians it is necessary to enlarge the implications of the word 'relationship' beyond the limitations of the 'interpersonal' or social. The subjective relationships that dominate the Polynesian psyche are with all nature, in its totality, and all its parts...” (pp. 117-118)

The landscape is an essential part of this totality that Puku'i and Handy refer to. That the term, landscape, is seemingly restricted to the physical “land” scape is not a Hawai'i perspective. In a Hawai'i perspective, as Puku'i and Handy plainly explicated above, landscape is not only that which is under ones foot. Let us take the time to redefine Landscape for the purposes of this document.

“Landscape”, in the way that it is used throughout this document to explain the Hawai'i natives social-ecological relations, refers to all objects and attitudes including: the physical geography of the island, the surrounding ocean, the different levels in the firmament of the heavens and all bodies of the heavens, layers of earth, all creatures, vegetation, mineral, elemental phenomenon, and the metaphysical. Moreover, the “land” scape also implies non-material elements such as the dreamscape, ancestral memory and ancestral prompting or what is commonly known as *na'au* or gut feeling. The later type of landscape is what, inevitably, maintains the connection of the individual to her familial relations in nature. That all of the above features are included in the notion of landscape is a very peculiar understanding for most. However, without the non-material landscape, the primary connection is severed.

The social-ecological reality of belonging to not separate from the surrounding environment is simply depicted in the familial terms such as *'ohana*, meaning taro stalk; *kua'āina*, meaning back bone of the land; and, *kama'āina*, child of the land, in other words, one who is physically, psychologically,

biologically, and genealogically inseparable from the surrounding environment. I will refer again to the clarifying insight of Handy and Puku'i in their explanation of Hawai'i perspective as "the old Hawaiian theory of Natural History" (p. 122), and kinship, based on the "systematic theory" (p. 122) and analogical logic of kinolau from pages 122-6:

"The comprehension of the relationship of persons and families in these islands to natural phenomena and the various genera of plants and animals, requires an understanding of the old Hawaiian theory of Natural History. This theory was based upon the observation of the resemblances, in form, in colour, in some notable detail of marking, or of habit, between natural phenomena, plant and animal forms. On the basis of these observed resemblances, the old Hawaiians developed a systematic theory which considered forms (*kino*, body) having notable resemblances of particular sorts to be multiple forms (*kino-lau*) of one or another of the ancestral nature gods which mythology and tradition purported to be either (a) primordial, i.e., born of the union of Sky with Mother Earth, in these islands; or (b) proto-historic or historic migrants from abroad, or (c) native Hawaiians who, long ago became elevated to the rank of gods of high rank and power. For example, the edible tree-ferns which cover the uplands are "bodies" of Haumea, who is Papa, Mother Earth herself. The sharks, on the other hand, are "bodies" of one of the brothers of Pele, goddess of vulcanism, who was an immigrant from abroad. Lizards seen to-day are related to a deified chiefess of the island of Maui who was a worshipper of the ancient goddess who was ancestress of all lizards, whose *kino-lau* all lizards are. Caterpillars are cousins of sea-cucumbers and baby eels, all descended, as his "multiple-forms," from a nature god who rose from the bottom of the sea in an age long past.

The rationale of these old Hawaiian theories of nature will be plain, in the notes that follow, for anyone who can understand the logic-by-analogy of old Polynesian thinking. The significance of the theory of *kino-lau* in relation to the *'ohana*, as family and community, lies in the fact that these concepts form the basis of *kapu* affecting individuals and groups; while equally they serve psychologically as common denominators of descent, relationship, status and duty for the kindred affected."

The notion that familial ties to the natural environment may seem strange and outright peculiar to persons outside of the Hawai'i native reality. On the contrary, in the reality of the native Hawai'i person, the degree to which one can align one's genealogy to the foundational elements is a significant subject of concern. Every native Hawai'i person should be able to, as Handy and Puku'i have so concisely stated above, anchor his/herself to some manner of primordial lineage, proto-historic migration, or lineage tracing them to the original inhabitants of this land, who through certain deeds, are deified as 'aumakua or akua. In essence, the native Hawai'i person, could not have come into existence or continue to exist for that matter, without these very antecedents. Consequently, in the native Hawai'i psyche and life ways, his/her own position of younger sibling to the landscape and the surrounding

environment requires acts of constant filial piety via ritual and reciprocal exchanges. "*I ola 'oe, i ola mākou nei*", my life is dependant on yours, your life is dependant on mine," is a common Hawai'i attitude that feeds and justifies our every decision and action. Of any kind of familial relationship, the basic rules of respect and reciprocity applies. It is not beyond, but a part of the native Hawai'i person to respect all his/her relations.

In the following sections, I will explain further sacred space and place. Then we will in turn see how our relation to sacred space and place manifests in our cosmological origins.

Gods Manifest in Sacred Space and Place

In this section we will look at places and spaces in terms of their natural hierarchical placement in the scheme of the landscape and their god forms. Places and spaces refer to the current geographical physicality of a feature/element/place, the atmospheric location of particular features/elements, and the oceanic location of features/elements. Places and spaces also refer to areas of thought, memory and feeling in the past, present and future. However, most places and spaces we will be talking about in this section are contained within the current reality of landscape. In referring to landscape, we refer to sky, earth and ocean as we cannot disconnect one from the other.

In the Hawai'i worldview, one place or space may be more accessible then the other, however all are significant in the order of things. Accessibility is directly related to the degree of sacredness of a place or space. Simply, the less accessible a place or space is, the more important it is. The more important the resource is in terms of its place and space, the more sacred. The native Hawai'i system of determining which places and spaces are more accessible than other is a matter of hierarchical arrangement, an arrangement we refer to as a *papa* or layer. The discussion of places and spaces in terms of their hierarchical arrangement is defined, most times, by two measures: one is horizontal positioning or what we call *papa* or layers, and the other is by function as primary resource or element.

Horizontal positioning is an interesting phenomenon in the Hawai'i perspective because it includes the layers of space from the highest stratum of the heavens or *lewa lani* to the depths of the

sea, or kai kanaloa, demarcating the space of the Hawai'i universe. These divisions of space and place have specific names and are described in detail from the perspective of noted Hawaiian scholar, Samuel Kamakau (1976) in the very first few pages of Mary Puku'i's translation of "The Works of the People of Old". This perspective includes the very core of the earth, Haumea, binds the celestial (Kane & Wakea) thread with the ocean (Kanaloa). This relationship between the two extreme spaces (the heavens and ocean depths) and the center, or earth core, are interestingly reflected in the Hawai'i native's reference to his/her own anatomy, in which there are three such divisions or, in this case, conjoining aspects. Consequently, in the reality of the Hawai'i worldview, the stratum of the heavens where the sun or Kanehoalani makes his path, the infinite depths of the ocean who is Kanaloa, and the very core of the earth (Hawai'i earth) who is Haumea are equally the most sacred spaces, inaccessible to every other form and primary for life in our island. In hierarchical order, here are the horizontal divisions or papa as understood from ancient texts. In general terms, they are:

- Heavens: sun, planets, stars ----clouds and wind currents-----where the birds fly----above our heads
- Earth: core----mountain summits-----mountain faces w/none or very little vegetation----forested areas---cultivated areas-----living areas-----coast
- Ocean: where ocean joins w/land----coral reef area----beyond reefs---places of the whales-----deep ocean-----ocean where light does not penetrate

Each space/place/element/resource thereafter has its own degree of sacredness. And each entity a biotic or biotic in each of these horizontal spaces have their varying degrees of kapu which are customarily dependant on their function in the grand scheme of things. The other measurement of hierarchical arrangement is function.

Let us look at our second means of "categorizing" (I use this word with caution and warning. The lines of categorization are not solid lines and can change as our ecological landscape changes) regarding function of primary elements as resource. In one of our very first sections titled, Resource

as Deity, I stated that there were five basic elements that greatly affect island life. I will copy that section here: *For the proto-historic as well as the contemporary native Hawai'i islander, our landscape, therefore our resources are governed by five of our most influential natural forces that affect our life systems: the ocean (Kanaloa), the elements within the dome of our universe (Kane-the sun, air currents, and like features) our high mountains (for Hawai'i island, Maunaloa & Mauna kea), volcanic activity (the Pele), and the kanaka.* In the art of designing ritual for the most potent outcome and most appropriate means of reciprocity, a practitioner needs to know this basic information. As an island/earth bound person, our most important resource is the island body. However, in the macrocosm of all natural phenomenon in the Hawai'i worldview, there are certain entities, without whose influence, life would not be.

- At the primary resource level: If the deity or resource is required for life, eg. space, sun, air, water, stars, volcanic landscape, ocean, then these primary resources and their body forms are at the top of the hierarchical spectrum. As we will learn below and throughout the narrative, all of these entities have names and multiple body forms. Let us continue.
- At the secondary resource level: If the deity or resource is a product or outcome of, or is hosted by one of the primary resources, for example, mountains, vegetation, rainfall, coral, rivers, whirlwinds, and dirt, to name just a few, then they are secondary in hierarchical order.
- At the tertiary resource level: If the resource or deity is thoroughly dependant on the energies of the resources or deities in the secondary status, like animal, insect, bird, kanaka, then we are at the third layer of the hierarchical spectrum.

Again, horizontal arrangement and status due to function, intersect at and diverge from a great many spaces and places. Our system of hierarchical arrangement is cyclical, and not so linear as to dismiss the intimate interdependency of all objects in the worldview of the native Hawai'i. For example, clouds would be defined as having more status than trees because they provide moisture in terms of their primary resource function and they obviously occur in a higher horizontal plane. But 'ohi'a forests in

Hawai'i traditional knowledge are not only the collectors and finders of water but also those who gather the clouds. Would the clouds still come to a place devoid of 'ohi'a forest, or would the forest cease to exist if the cloud people did not rest there? Herein lies the difficulty of categorization. The attitude then of my life is dependant on yours and your life is dependant on mine is plainly clear. In the Hawai'i worldview, there is no existence without cyclic interdependency. However, basic knowledge of the notion of hierarchy, gives us boundaries by which to define our own importance and the importance of the "people" (not human only) around us. These ideas guide our every interaction within our very full yet limited Hawai'i universe.

Family Ties Anchored in Cosmology

Let us now look into a couple of samples of cosmology that will further illustrate the idea of space, place and hierarchical positioning. To do this, we will dig a little further into the consciousness of the native Hawai'i persons with respect to his/her cosmological origins. Kumuhonua are cosmological origin myths. Myth is not a "fictional occurrence". Myth is an orally transmitted record of the conscious and unconscious memories of the native. We depend on the sacred texts of myth not only in the literal frame, but in a metaphoric one as well. Myth, like history, records what has been and thus informs us of what will be.

In the worldview of the native Hawai'i, origin stories directly anchor us to our elemental family by means of a creative process that positions each element in his/her own sacred status. This process of positioning also informs us of our rights and responsibilities one to another. The origin chants mentioned below are created and presented in poetic form. The first kumuhonua, is 'O Wakea Noho Ia Papahānaumoku. The second, Mele a Paku'i, is also a kumuhonua in that it reiterates the beginnings of certain life cycles. More specifically, Mele a Paku'i is composed as a mele mo'oku'auhau or a genealogical chant. Its purpose like the third chant, Kumulipo, is to link a particular chief to his/her elemental origins thereby associating him/her as a direct descendant of those elements or deities. The kumuhonua and mele mo'oku'auhau included here are only three (3) examples of many in the oral

traditions of Hawai'i natives from Kanemiloha'i to Hawai'i Island. One thing to be aware of when trying to understand these chants is that they are observed by the native Hawai'i not as conflicting linear accounts of creation, but as cyclical accounts of different aspects of creation, arrival, and descent intersecting time and space at different intervals. To illustrate family ties anchored in cosmology, let us look to one of the most widely dispersed Hawai'i creation chants, 'O Wakea Noho Ia Papahanaumoku.

O Wakea Noho Ia Papahanaumoku

O Wakea noho ia Papahanaumoku
Hanau o Hawaii, he moku
Hanau 'o Maui, he moku
Hoi ae o Wakea noho ia Hoohokukalani

Hānau o Molokai, he moku
Hānau o Lanaikaula, he moku
Liliopu punalua o Papa ia Hoohokkalani
Hoi hou o Papa noho ia Wakea
Hanau o Oahu, he moku
Hanau o Kauai, he moku
Hanau o Niihau, he moku
He ula ao Kahoolawe
Noho hou o Wakea ia Hoohokukalani

Ua hanau mai ka Wakea keiki mua
He keiki alualu
O Haloanaka ka inoa

A make ua keiki alualu la
Kanu ia iholā ma waho o ke kala o ka hale
I lalo i ka lepo
Ma hope iho ulu mai ua keiki la, kalo no

O ka lau o ua kalo la
Ua kapa ia o Laukapalili
O ka ha o ua kalo la, o Haloa
Hanau mai he keiki hou
Kapa lakou i kona inoa ma ka ha o ua Kalo la,

O Haloa
Nana mai ko ke ao nei a pau,
O Haloa hoi!
(Malo, pgs.)

Wakea resides with Papahanaumoku
Hawaii is the first-born island child
Maui is born, an island child
Diurnal space turns to nocturnal space, the Dome-of-Space intercourses with She-who-populates-the-night-sky
Molokai is the first to be born of the stars
Lanaikaula an island child is born
Chaos abounds between earth and stars
Papa reclaims Sky-father
Oahu is born, an island
Kauai is born, an island
Niihau is born, an island
Kahoolawe is born, the royal one
Again the cycles turn and Wakea intercourses with Heavenly spheres
Man is born from the union of sky and stars
Alas, the birth is premature
He is Haloanaka, the quivering prayer, the Star child
The first born is the sacrifice
Buried
Returned to the earth
From the place of internment, a child grew, it was kalo
The leaf of the kalo
is named Laukapalili, the fluttering
The stem of the kalo is Haloa, long life
A second child is born
He is named for the life that came from that Kalo
His name is Haloa, in memory of the first
From this progenitor is born the generations
Long life indeed!

This chant speaks to several important very aspects, that of kinship, sacrifice, hierarchical relations, the intercourse between the stars, space and earth, and that of the sacredness of space. ‘O Wakea Noho Ia Papahanaumoku explains, again, several familial and hierarchical relationships. In terms of hierarchical and familial relations, this sacred text positions primordial elements, Wakea, Papa, and Ho’ohokukalani at the apex of the hierarchical stratum with Wakea as the binding agent between earth and stars, hence the most significant element or deity. The island children appearing in rank order is the second in hierarchical status. The premature firstborn is the third, followed by the kalo/taro or sustenance as the fourth, and kanaka as the fifth element of status present in this particular mele, or poetic text. Furthermore, this kumuhonua also makes clear the significance of the relationship between the Papa or earth and the diurnal space (Wakea in the day) in comparison to Ho’ohokukalani and the nocturnal space (Wakea in the night). There is a time of chaos in this story (as there is in many other world cosmologies) when the natural elements of earth and stars battle for the position of first mate. Just as the island children, from Southeast to Northwest, are born of both celestial and earthly parentage, the kalo is a product of the same parentage. With the death or sacrifice of the premature first born, a kalo or plant child evolves from the place of internment, from his burial place in the bosom of Papa. This sacrifice and subsequent rebirth reestablishes a balanced relationship between diurnal/nocturnal space, stars and earth as complimentary entities. The kalo then, unlike the island children, is a product of all three elements/deities. This sacrifice is to provide generations of sustenance for the native Hawai’i descendants to come. The reenactment of this dynamic story persists in our rituals till today.

Kalo and kalo products (poi, pa’i’ai, etc.) continue to be held in high esteem, hence, the necessity of kalo forms at all contemporary ritual celebrations, e.g. baby lu’au, first year celebrations for the dead, graduation party’s, weddings, rites of passage, etc. Because we have the many varieties of kalo or taro, kalo maintains to be one of the most accepted ritual offerings in most ceremonies. The spiritual and psychological use of the kalo reminds the native Hawai’i person of the sacrifice that was necessary to bring temporary chaos into temporary order.

This particular kumuhonua or creation text not only anchors the Hawai'i native as the muliloa or younger sibling of Hawai'i Island, Maui Island, Haloa, etc., but positions Hawai'i natives as offspring of the union of earth, space and stars, born of divine parentage and obligated to the familial duties of continuous filial piety through ritual, practice and reciprocity. It is plain, in the worldview of the native Hawai'i that space or Wakea, in both his characteristics as night and day, is positioned as the most crucial primary phenomenon in the Hawai'i universe. It is this element that not only fathers the birth of the islands and fathers the kalo and the generations of kanaka that follow, but it is the dome of Wakea in and under which all other atmospheric entities function. As such, within this particular context, Wakea is the most sacred element known to Hawai'i intelligencia, and therefore, without a doubt, possess the most significant degree of kapu, the kapu of inaccessibility. Now we will examine a portion of Mele a Paku'i. This chant can be found in its entirety in Abraham Fornander's (195x) Hawaiian Antiquities and Folklore (pp. xxxx).

Mele A Paku'i

'O Wakeakahikoluamea,	Wakea of Primordial Origins
'O Papa, 'o Papahanaumoku ka wahine	Papa, Papa-female-who births-islands
Hanau Kahikiku, Kahikimoe	Born are the ascending and the inclining horizons
Hanau Ke'apapanu'u, Ke'apapalani	Born are the Great Reefs, and the Upper Regions of the Heavens
Hanau Hawai'i, ka moku makahiapo	Hawai'i is born, privileged and primed for dedication to the ancestors
Keiki makahiapo a laua	First born child of Wakea and Papa
'O Wakea laua 'o Kane,	Dome of Space & God of Atmosphere & Sun
'O Papa, 'o Walinu'u ka wahine	Solid Earth & Molten Earth
...Hanau Kamawaelualanimoku	...Kamawaelualanimoku is Kaua'i
He eweewe Ni'ihau	Ni'ihau, the placenta
He palena o Lehua	Lehua, the boundary
He panina Kaula	Kaula, the extreme boundary
O ka Mokupapapa	Mokupapapa & the atolls are the old ones
Na papa kahakuakea o Lono...	belonging to Lono...

For our purposes, the text is truncated to observe certain similarities in text. In Mele a Paku'i, we find some of the same elements introduced to us in 'O Wakea Noho Ia Papahanaumoku. However, Mele a Paku'i extends into a poetic explanation of the birth of vertical and horizontal horizons.

indicating the extreme boundaries of the Hawai'i universe as demarcated by the movement of Kane, atmosphere and sun as our horizontal papa and Kahiki Ku and Kahiki Moe as the extremes of our vertical horizons. (We mention Kane as the sun and hence the path of the sun as well. Kane's other companion deity in this is Kanaloa during the winter cycle of the year. But we will save this discussion for another opportunity.) This text assigns complimentary partners in the parentage of the island children, from Hawai'i to Mokupapapa and KahakuakeaoLono (these include the low islands and atolls beyond Ni'ihau, Ka'ula, and Lehua). In this sacred text, the metaphoric exchange between the two male atmospheric energies, Wakeakahikoluamea (Waieka-of-Kahiko-Luamea) and Kane, and the two feminine energies, Papa (foundational earth) and Walinu'u (primordial slime) afford us a much broader scope for the interplay of certain spiritual and physical connections. Remember in my very first explanation of these texts, that Mele a Paku'i is specifically created to link a particular chief (whose name appears in the complete version of this chant) to both the primordial male entities who delineate the horizons of our Hawai'i universe, and the primordial female energies whose power it is to affect the evolutionary structure of these islands. That is, it is within the feminine role to create new land from a molten mass in the image of the first born, Hawai'i island, and, then, to simultaneously deconstruct other island scapes, like the image of Lehua, Kaula and the atolls, in the natural process of birth, death, and rebirth of the islands. This effective image transposes to the native Hawai'i's cycle of life and death. This image suggests that our own creation is one that emerges from the wali or slime of our mother's womb. And then, as our own life time sets and descends into the extreme horizons of the sun, our bones become as brittle as the bleached coral of Mokupapapa. Then, just as the island children go through their own death and rebirth through the natural processes of weathering, reduction and ultimately subduction (a return into the ocean), the rebirth of our islands begins again at the core, Walinu'u, where the womb of the earth regenerates and recycles matter to give birth to islands once more. This information is in the chants.

Mele a Paku'i gives us a more detailed notion of sacred space as that space which is delineated by both the horizontal movement of Kane, the sun, in his southeast-northwest corridor and the vertical movement of the sun from the zenith to the nadir. Along this vertical axis is the birth of Kahiki Ku, boundaries delineated by the ocean-sky horizon, and Kahiki Moe, plane beyond/under/below the setting. Kahiki Ku and Kahiki Moe in this context is the eldest offspring, followed by the layers of 'apapanu'u and 'apapalani, followed then by the birth of Hawai'i and so forth.

On a large scale this corridor extends from a horizon beyond Hawai'i island at the S.E. to the extreme horizon beyond the atolls of Mokupapapa and KapapakahakuakeaoLono (the bleached spine of Lono) in the N.W., all occurring within the realm of Kahiki Ku. The presence of Kahiki Moe as companion, in this context, suggests the notion of time and space beyond the visible plane of the ocean-sky horizon. This path of Kane is considered the macro scale of the S.E.-N.W. corridor. This space is mentioned again and again in all manner of chant, song, and oratory.

This corridor is transposed to other landscapes to delineate sacred space and time in a number of places and spaces in Hawai'i on a micro scale. The island scale is one example. On the Hawai'i Island landscape is the famed eastern most point of Kumukahi where Ha'eha'e is the gate of the sun's reentry or ascent. The sun's descent then, is credited to a number of sacred spaces on the Kona side of the island, Napo'opo'o, Keauhou, Kealakeakua, and Pu'uohau are the most famous. After the island scale, different districts or moku measure their own seasonal change and sacred space according to specific points from ocean to mountain, from mountain to ocean, from one side of the mountain to the other, or from one mountain or valley peak to another and so on. Both Mauna Kea and Maunaloa have their own corridors at their peaks. Maunaloa's sun corridor is at Mokuaweoweo, where Pohaku O Hanalei, the pu'u cinder cone, and Pohaku o Hanalei the pohaku delineate the S.E.-N.W. movement of the sun during the...The smallest scale in which the sacred space of the sun's path can be measured or viewed (besides the kanaka's own life cycle) is the heiau. Not all heiau are positioned in such a way, but most of the larger po'okanaka heiau like Pu'ukohola or Ulupo, or Ke'eke'e and other heiau like Ahu a Umi or

Holomoana are purposefully positioned to expect the arrival and the departure of the sun (and consequently the stars) according to the construction of particular corners and uprights.

The final element of this chant that is important for our discussion here is the horizontal delineation of sacred space mentioned in the first four lines of this chant. The birth of Ke'apapanu'u and Ke'apapalani delineates the sacred space from the coral beds to the upper layers of the heavens. These complimentary offspring are second in hierarchical status to path of the sun, thus anchoring our native Hawai'i familial ties to our primary deities and particular spaces associated with them. To close this part of the document before introducing the Pele landscape, we will take a brief peak into the Kumulipo text as an illustration of the native Hawai'i's community of relations.

The Native Hawai'i Community, Our Macrocosm of Relations

The purpose of this section is to account for the myriad of god forms important in the conscious and unconscious of the native Hawai'i person pertaining to natural environment as relative, resource as deity, deity as sacred, and the native Hawai'i kanaka's responsibility to that relationship. I have chosen to illuminate the Kumulipo because it immediately creates an image of what, more correctly, who our potential 400,000 relations are. Each entity from the first line to the very last, give us an overwhelming feeling of the expansiveness of the Hawai'i native's collective network of relations. The Kumulipo, Wa Akahi or first era, illustrates, quite clearly our macrocosm of relations; it is not hyperbole, as you will see for yourself. It can be clearly understood, that having such relations is truly a blessing; for, how can one ever be lonely in such a universe full of relations. At the same time, this exhibit of the infinite quantity of relations also requires an infinite amount of ritual and reciprocity and knowledge of which god (both feminine and masculine) has status over another. I have, on many occasions, made it an exercise to physically count the number of natural phenomenon occurring in these lines. It is a kind reminder to me that I can consider myself a part of this family. Try counting from the first line, 1. Ke Au I Kahuli (altering of time and space) and, 2. Wela Ka Honua (hot earth).

Of the lines that are most poignant and valuable to the lesson of the native Hawai'i worldview, environmental kinship, and anchoring family ties, is the repeating line that states, “O ke akua ke komo, ‘a’oe komo kanaka”, the god enters, man does not enter...not yet.

In the interest of not overloading the reader before we get to the Pelehonuamea portion of this document, I have only chosen an excerpt from the Kumulipo. The comprehensive version can be found in Lili'uokalani's (18xx) text or Marth Beckwith's (19xx) text. I thank Ku'ulei Higashi Kanahele of the Edith Kanakaole Foundation for providing this version.

The Pule Ho'ola'a Ali'i

He Kumulipo No Ka'i'imamao A Ia Alapa'i Wahine

Ka Wa' Akahi

1. 'O ke au i kahuli wela ka honua
2. 'O ke au i kahuli lole ka lani
3. 'O ke au i kuka'ia ka lā
4. E ho'omalamalama i ka malama
5. 'O ke au o Makali'i ka pō
6. 'O ka walewale ho'okumu honua ia
7. 'O ke kumu o ka lipo i lipo ai
8. 'O ke kumu o ka pō i pō ai
9. 'O ka lipolipo, 'o ka lipolipo
10. 'O ka lipo o ka lā, 'o ka lipo o ka pō
11. Pō wale ho'i
12. Hānau ka pō
13. Hānau Kumulipo i ka pō, he kāne
14. Hānau Po'e ele i ka pō, he wahine
15. Hānau ka Uku ko'ako'a, hānau kāna, he 'ako'ako'a, puka
16. Hānau ke Ko'e 'Enuhe, 'eli ho'opu'u honua
17. Hānau kāna, he Ko'e, puka
18. Hānau ka Pe'a, ka Pe'ape'a kāna keiki, puka
19. Hānau ka Weli, he Weliweli kāna keiki, puka
20. Hānau ka 'Ina, ka 'Ina
21. Hānau kāna, he Halula, puka
22. Hānau ka Hāwa'e, 'o ka Wanaku kāna keiki, puka

The First Age

Time was altered when the earth became hot
Time was altered when the sky turned inside out
A time when the days were dark
Brightened only by the moon
A time of Makali'i
The earth originated in slime
With its origins in darkness
With its origins in night
Darkness, darkness
Darkness of day, darkness of night
Engulfed in night
The night gives birth
Kumulipo gives birth at night to a male
Po'e ele gives birth in the night to a female
The Coral gives birth to an offspring, the coral head emerges
The Caterpillar gives birth, digging up the earth
The Worm emerges
The Starfish gives birth, the small starfish emerges
The Sea Cucumber gives birth, the small sea cucumber emerges
The Sea Urchin gives birth
Producing an offspring, a Sea Urchin emerges
The Sea Urchin gives birth to a Sea Urchin

23. Hānau ka Haʻukeʻuke, 'o ka Uhalula kāna keiki, puka	The Sea Urchin gives birth to a Sea Urchin
24. Hānau ka Pīʻoe, 'o ka Pipi kāna keiki, puka	The Barnacle gives birth, the Pearl Oyster emerges
25. Hānau ka Pāpaua, 'o ka 'Ōlepe kāna keiki, puka	The Bivalve gives birth, the Bivalve emerges
26. Hānau ka Nahaweale, 'o ka Unauna kāna keiki, puka	The Bivalve gives birth, the Hermit Crab emerges
27. Hānau ka Makaiauli, 'o ka 'Opihi kāna keiki, puka	The Limpet gives birth, the Limpet emerges
28. Hānau ka Leho, 'o ka Pūleholeho kāna keiki, puka	The Cowry gives birth, a small elongated Cowry emerges
29. Hānau ka Naka, 'o ke Kupekala kāna keiki, puka	A Sea Creature gives birth, a Bivalve emerges
30. Hānau ka Makaloa, 'o ka Pūpū 'Awa kāna keiki, puka	The Shellfish gives birth, the Shellfish emerges
31. Hānau ka 'Olē, 'o ka 'Olē'olē kāna keiki, puka	The Conch Shell gives birth, the small Conch shell emerges
32. Hānau ka Pipipi, 'o ke Kupe'e kāna keiki, puka	The Mollusk gives birth, the Marine Snail emerges
33. Hānau ka Wi , 'o ke Kīkī kāna keiki, puka	The Grainy Snail gives birth, the Shellfish emerges
34. Hānau kāne iā Wai'ololī, 'o ka wahine iā Wai'ololā	Wai'ololī is the product of males, Wai'ololā of females
35. Hānau ka 'Ēkaha noho i kai	The Black Coral gives birth, it is found in the sea
36. Kia'i 'ia e ka 'Ēkahakaha noho i uka	Guarded by the Bird's Nest fern in the uplands
37. He pō uhe'e i ka wawā	The night becomes tumultuous
38. He nuku, he wai ka 'ai a ka lā'au	Ranting, plants are sustained by water
39. 'O ke Akua ke komo, 'a'oe komo kanaka	The Gods enter, man does not have access
40. 'O kāne iā Wai'ololī, 'o ka wahine iā Wai'ololā	Wai'ololī is the product of males, Wai'ololā of females
41. Hānau ka 'Aki'aki noho i kai	The Seashore Rush Grass gives birth, it is found in the sea
42. Kia'i 'ia e ka Mānienie 'Aki'aki noho i uka	Guarded by the Seashore Rush Grass in the uplands
43. He pō uhe'e i ka wawā	The night becomes tumultuous
44. He nuku, he wai ka 'ai a ka lā'au	Ranting, plants are sustained by water
45. 'O ke Akua ke komo, 'a'oe komo kanaka	The Gods enter, man does not have access
46. 'O kāne iā Wai'ololī, 'o ka wahine iā Wai'ololā	Wai'ololī is the product of males, Wai'ololā of females
47. Hānau ka 'A'ala'ula noho i kai	The Velvety-Green Seaweed gives birth, it is found in the sea
48. Kia'i 'ia e ka 'Ala'ala Wai Nui noho i uka	Guarded by the Forest Herb in the uplands
49. He pō uhe'e i ka wawā	The night becomes tumultuous
50. He nuku, he wai ka 'ai a ka lā'au	Ranting, plants are sustained by water
51. 'O ke Akua ke komo, 'a'oe komo kanaka	The Gods enter, man does not have access
52. 'O kāne iā Wai'ololī, 'o ka wahine iā Wai'ololā	Wai'ololī is the product of males, Wai'ololā of females
53. Hānau ka Manauea noho i kai	The small Red Seaweed gives birth, it is found in the sea
54. Kia'i 'ia e ke Kalo Manauea noho i uka	Guarded by the Manauea Taro in the uplands
55. He pō uhe'e i ka wawā	The night becomes tumultuous
56. He nuku, he wai ka 'ai a ka lā'au	Ranting, plants are sustained by water
57. 'O ke Akua ke komo, 'a'oe komo kanaka	The Gods enter, man does not have access
58. 'O kāne iā Wai'ololī, 'o ka wahine iā Wai'ololā	Wai'ololī is the product of males, Wai'ololā of females

59. Hānau ka Kō^ʻele^ʻele noho i kai
 60. Kia^ʻi ^ʻia e ke Kō^ʻPunapuna Kō^ʻele^ʻele noho i uka
 61. He pō^ʻuhe^ʻe i ka wawa^ʻ
 62. He nuku, he wai ka ^ʻai a ka la^ʻau
 63. ^ʻO ke Akua ke komo, ^ʻa^ʻoe komo kanaka

The Red Seaweed gives birth, it is found in the sea
 Guarded by the Jointed Sugarcane in the uplands
 The night becomes tumultuous
 Ranting, plants are sustained by water
 The Gods enter, man does not have access

64. ^ʻO kāne iā^ʻWai^ʻololi^ʻ, ^ʻo ka wahine iā^ʻWai^ʻolola^ʻ
 65. Hānau ka Puaki^ʻnoho i kai
 66. Kia^ʻi ^ʻia e ka Lau^ʻaki noho i uka
 67. He pō^ʻuhe^ʻe i ka wawa^ʻ
 68. He nuku, he wai ka ^ʻai a ka la^ʻau
 69. ^ʻO ke Akua ke komo, ^ʻa^ʻoe komo kanaka

Wai^ʻololi^ʻ is the product of males, Wai^ʻolola^ʻ of females
 The Red Seaweed gives birth, it is found in the sea
 Guarded by the Seashore Rush Grass in the uplands
 The night becomes tumultuous
 Ranting, plants are sustained by water
 The Gods enter, man does not have access

70. ^ʻO kāne iā^ʻWai^ʻololi^ʻ, ^ʻo ka wahine iā^ʻWai^ʻolola^ʻ
 71. Hānau ka Kakalamoa noho i kai
 72. Kia^ʻi ^ʻia e ka Moamoa noho i uka
 73. He pō^ʻuhe^ʻe i ka wawa^ʻ
 74. He nuku, he wai ka ^ʻai a ka la^ʻau
 75. ^ʻO ke Akua ke komo, ^ʻa^ʻoe komo kanaka

Wai^ʻololi^ʻ is the product of males, Wai^ʻolola^ʻ of females
 The Kakalamoa gives birth, it is found in the sea
 Guarded by the Moamoa in the uplands
 The night becomes tumultuous
 Ranting, plants are sustained by water
 The Gods enter, man does not have access

76. ^ʻO kāne iā^ʻWai^ʻololi^ʻ, ^ʻo ka wahine iā^ʻWai^ʻolola^ʻ
 77. Hānau ka Limu Kele noho i kai
 78. Kia^ʻi ^ʻia e ka Ekele noho i uka
 79. He pō^ʻuhe^ʻe i ka wawa^ʻ
 80. He nuku, he wai ka ^ʻai a ka la^ʻau
 81. ^ʻO ke Akua ke komo, ^ʻa^ʻoe komo kanaka

Wai^ʻololi^ʻ is the product of males, Wai^ʻolola^ʻ of females
 The Freshwater Weed gives birth, it is found in the sea
 Guarded by the Ekele in the uplands
 The night becomes tumultuous
 Ranting, plants are sustained by water
 The Gods enter, man does not have access

82. ^ʻO kāne iā^ʻWai^ʻololi^ʻ, ^ʻo ka wahine iā^ʻWai^ʻolola^ʻ
 83. Hānau ka Limu Kala noho i kai
 84. Kia^ʻi ^ʻia e ka ^ʻAkala noho i uka
 85. He pō^ʻuhe^ʻe i ka wawa^ʻ
 86. He nuku, he wai ka ^ʻai a ka la^ʻau
 87. ^ʻO ke Akua ke komo, ^ʻa^ʻoe komo kanaka

Wai^ʻololi^ʻ is the product of males, Wai^ʻolola^ʻ of females
 The Brown Seaweed gives birth, it is found in the sea
 Guarded by the Raspberry in the uplands
 The night becomes tumultuous
 Ranting, plants are sustained by water
 The Gods enter, man does not have access

88. ^ʻO kāne iā^ʻWai^ʻololi^ʻ, ^ʻo ka wahine iā^ʻWai^ʻolola^ʻ
 89. Hānau ka Līpu^ʻupu^ʻu noho i kai
 90. Kia^ʻi ^ʻia e ka Līpu^ʻu noho i uka
 91. He pō^ʻuhe^ʻe i ka wawa^ʻ
 92. He nuku, he wai ka ^ʻai a ka la^ʻau
 93. ^ʻO ke Akua ke komo, ^ʻa^ʻoe komo kanaka

Wai^ʻololi^ʻ is the product of males, Wai^ʻolola^ʻ of females
 The Green Seaweed gives birth, it is found in the sea
 Guarded by the Līpu^ʻu in the uplands
 The night becomes tumultuous
 Ranting, plants are sustained by water
 The Gods enter, man does not have access

94. ^ʻO kāne iā^ʻWai^ʻololi^ʻ, ^ʻo ka wahine iā^ʻWai^ʻolola^ʻ

Wai^ʻololi^ʻ is the product of males, Wai^ʻolola^ʻ of females

95. Hānau ka Loloa noho i kai	The Seaweed gives birth, it is found in the sea
96. Kia‘i ‘ia e ka Kalamaloloa noho i uka	Guarded by the Kalamaloloa in the uplands
97. He pō uhe‘e i ka wawā	The night becomes tumultuous
98. He nuku, he wai ka ‘ai a ka lā‘au	Ranting, plants are sustained by water
99. ‘O ke Akua ke komo, ‘a‘oe komo kanaka	The Gods enter, man does not have access
100. ‘O kāne iā Wai‘ololī, ‘o ka wahine iā Wai‘ololā	Wai‘ololī is the product of males, Wai‘ololā of females
101. Hānau ka Nē noho i kai	The Seaweed gives birth, it is found in the sea
102. Kia‘i ‘ia e ka Neneleau noho i uka	Guarded by the Sumach in the uplands
103. He pō uhe‘e i ka wawā	The night becomes tumultuous
104. He nuku, he wai ka ‘ai a ka lā‘au	Ranting, plants are sustained by water
105. ‘O ke Akua ke komo, ‘a‘oe komo kanaka	The Gods enter, man does not have access
106. ‘O kāne iā Wai‘ololī, ‘o ka wahine iā Wai‘ololā	Wai‘ololī is the product of males, Wai‘ololā of females
107. Hānau ka Hulu Waena noho i kai	The Dark Red Seaweed gives birth, it is found in the sea
108. Kia‘i ‘ia e ka Huluhulu ‘Ie‘ie noho i uka	Guarded by the Branching Climber in the uplands
109. He pō uhe‘e i ka wawā	The night becomes tumultuous
110. He nuku, he wai ka ‘ai a ka lā‘au	Ranting, plants are sustained by water
111. ‘O ke Akua ke komo, ‘a‘oe komo kanaka	The Gods enter, man does not have access
112. ‘O ke kāne huawai, Akua kēnā	The man with the water gourd container is like a god
113. ‘O kālina a ka wai i ho‘oulu ai	The vines that were propagated by water
114. ‘O ka huli ho‘okawowo honua	The taro top that multiplies
115. ‘O pa‘i ‘a‘a i ke auau ka manawa	A time when the root system spread
116. ‘O he‘e au loloa ka pō	The night is long
117. ‘O piha, ‘o pihapiha	Filling
118. ‘O piha‘ū, ‘o piha‘ā	Cramming
119. ‘O piha‘ē, ‘o piha‘ō	Stuffing
120. ‘O ke ko‘o honua pa‘a ka lani	Supporting the earth, securing the skies
121. ‘O lewa ke au iā Kumulipo ka pō	The time of Kumulipo is unstable
122. Pō nō	It is night

Iteration by Ku‘ulei Higashi Kanahale, c. Edith Kanakaole Foundation, 2002

Conclusion to Part I: Native Hawai‘i Worldview

The motif of the union of earth and sky renders not only the act of the union as sacred, but the very elements themselves as sacred, as gods, as beings from whom the rest of the elements who sustain life are descended. The magnitude to which this concept is illustrated in Hawai‘i practice, until today, is evident in all manner of worship, and is most visual in *heiau* structures in which the alignment of the

corners (depending on location, seasonal use and function) is intentionally designed in alignment with the rising or setting of the celestial bodies. The *anu'u* or tower that resides on the *heiau* structure, take many forms, but the function, from worship site to worship site is the same. That is, the ability to snare currents and energies in the sky determines a positive or negative outcome of the ritual. The healing and/or restoration of one's health is explicitly dependent on the position of the celestial bodies in the sky and determines the physical position (relative to movement of heavenly bodies) that the patient's own body must face to expel the sickness and to invite wellness into his own sphere. The gathering of the right medicines to cure the sick is dependant on the position of the sun, and the cycle or phase of the moon. The way a dead person is positioned in his final rest is dependant on where the sun rises and sets. The time and place of ritual and ceremony for modern day practitioners are very serious issues. To be able to create the axis through which the appropriate energies will flow is dependant on how well the practitioners position themselves in the intersection of earth and sky, in vital respect to the very fact that the powerful union of those elements brought us into being and continues to sustain us. I ola 'oe, I ola makou nei! We sustain one another.

'Oi ola honua! Profound life to the earth!

No Pele, No Ko'u Akua La E: Part III, Pelehonuamea

By

Kekuhi Keali'ikanakaole

Pelehonuamea and Her Sphere of Influence

Pelehonuamea is the multi-dimensional energy or entity whose primary function is to create land and whose primary form is volcanic matter. It is a common misinterpretation or perhaps misconception that limits Pelehonuamea's primary domain to Halema'uma'u in Kilauea, or Mokuweoweo of Mauna Loa, when in fact, as documented in chant, story, and the memory of kūpuna (elders) and practitioners, Pelehonuamea's known domain is all that is volcanic. To define the sphere of influence or the space of Pelehonuamea in the broadest terms is to claim the entire archipelago, all Hawaiian islands and the space under, around, and above the islands.

*...No wai ke kanaenae
For whom is this supplication*

*No ka 'ohana a Haumea ke kanaenae
It is for the family of Haumea (female parent of Pele)*

*Ku'u 'ia e Kane ke ko'a
The coral polyps are released by Kane*

*I ka ia nei manawa ia
This is his kapu, his building blocks*

*No Pele, no Hiiaka no ka honua
As for Pele and Hi'iaka, to them belongs the earth*

*Ka honua nei, ka honua lewa, ka lani i luna
This earth, the floating earth, the universe above*

(Mai loko mai o ke ka'ao o Pele & Hi'iaka, p. 122)

In the chant text reiterated in the lines above, we find out, in no uncertain terms, to whom this volcanic region belongs. The chant text establishes the familial relationships of Haumea (who are Kane, Pele and Hi'iaka in this text) and at the same time establishes that whereas it is Pele's function to create new volcanic land, it is one of Kane's primary function to cause the procreation of the coral reef as the foundation for marine life. The spawning of coral is a function of Kane. The last two lines of the chant text above, "*No Pele, no Hi'iaka, no ka honua; Ka honua nei, ka honua lewa, ka lani i luna*" iterates the boundaries of spaces sacred to Pelehonuamea and her sister. This reference explicitly names earth,

floating earth and the heavens above as domains belonging to Pelehonuamea and her younger sister, Hi'iakaikapoliopole. The relationship between the two entities is a complimentary one. Pele's primary responsibility is that of creating land while Hi'iaka's primary responsibility lays in the natural greening of the land. The floating earth refers to large cloudbanks, and all other heavenly entities, individual stars, constellations, the moon, and the sun. The reference to the heavens, although seemingly self-explanatory, should be defined here as all stratum of air space above land.

Pelehonuamea: Sacred Lineage

No Ka Hanau 'Ia 'Ana O Na Pele

Genealogy of the Pele Can

Haumea (W)	Makuhine [mother]
Moemoeaali'i (K)	Makuakane [father]
Kamohoali'i (k)	Hanau ma ka manawa mai Born from the fontanel of Haumea
Kanehekili (k)	Hanau ma ka waha Born from the mouth of Haumea
Kauilanuimakehaikalani (k)	Hanau ma ka maka Born from the eye of Haumea
Kuha'imoana (k)	Hanau ma ka pepeiao Born from the ears of Haumea
Kanemilohai (k)	Hanau ma ka poho lima 'akau Born from the right palm of Haumea
Leho (k)	Hanau ma ka 'opu'upu'u lima Born from the knuckles of Haumea
Kaneikokala (k)	Hanau ma ka manamana lima Born from the fingers of Haumea
Namakaokaha'i (w)	Hanau ma ka umauma Born from the chest of Haumea
Pelehonuamea (w)	Hanau ma kahi mau e hanau 'ia ai ke kanaka Born from the usual birth place
Kapo'ulakina'u (w)	Hanau ma na kuli Born from the knees of Haumea
Kapokohelele (w)	Hanau ma ka 'opu'upu'u wawae Born from the ankles of Haumea
Hi'iakakalukalu (w)	Hanau ma na manamana wawae Born from the toes of Haumea
Hi'iakakuilei (w)	Hanau ma na kapua'i wawae Born from the feet of Haumea
Hi'iakaikapoliopole (w)	Hanau ma na poho lima ma ke 'ano me he hua moa ala Born from the left palm in the form of an egg

(Ka Hoku O Hawai'i, Hawaiian Newspaper)

The best place to start in attempting to explicate the sacredness of the space of Pelehonuamea is to begin with her own family records. The above is but one iteration of Pelehonuamea's genealogical ties. I have chosen this sacred text due to the unusually abstract nature of the text. Notice the attention that is given to the body parts, thereby suggesting the function, status, and the multi-dimensional populating of not only the senses, but as Pualani states in Holo Mai Pele, "is indicative of the abilities and skills he or she is to develop.... Because Pele is born from the womb, her primary duty is to reenter the womb of the earth and be reborn as molten lava in the form of new land" (VIII). I would reiterate that oral traditions and traditional knowledge are locally situated and bound to place. Therefore, the genealogy of Pelehonuamea, of which there are different accounts, depends on locality, hence an O'ahu island account of Pelehonuamea's parentage slightly differs from an account by families who live on Hawai'i Island and so forth. This account is from the particular traditions of Hawai'i island families. Additionally, the names or perhaps spelling of names for the male and female entities in such traditions may vary slightly, however, the basic elemental features remain the same. Below is a brief explanation of each deity's form. When one understands the form, the function, space and kinolau, then begin to make more sense. Please note, that these are the less obscure forms/functions of the following deity, and that not all forms and functions can be explained literally or in a linear fashion as I have done. One additional caveat, this is not an exhaustive list, but will serve our purposes for now.

Nä Mākua [parents]

Kānehoalani (k) [sun; mountain formation on O'ahu; consciousness]

Kuwahailo (k) [souncery and sacrifice]

Moemoeaali'i (k) [of dreams, inspiration, psyche; ancestral memory via departed chiefs; subconscious]

Kapalikapu (k) [cliffs & cliff faces; virginity; vertical geological features on land & submarine]

Haumea (w) [earth, molten core; fertility; multiple generations over time & space]

Nä Kini a läua [their offspring]

Kamohoali'i (k) [shark, navigator, landslides, cliffs, rain, leader of the family]

Kānehekili (k) [thunder, rain, dark cloud forms]

Kauilanuimākehāikalani (k) [sky fire, lightning, electricity, rain, cloud forms]

Kūha'imoana (k) [breaker of waves, the scout]

Kānemilohai (k) [in charge of N.W. Hawaii islands and atolls, deep dark seas, ancestral knowledge, restoration of life]

Kāneikōkalo (k) [aka Kāneikōkalalūhonua] corals; ocean plates

Nāmakaokaha'i (w) tidal wave; crest of wave;

Pelehonuamea (w) all forms, products, and process of volcanic activity

Kapō'ulakīna'u (w) unconscious; inspiration; dark; fertility;

Kapōkohelele (w) she whose fertility attracts animal instinct; literally, the flying vagina

Hi'iakakalukalu (w) reflected in thorns

Hi'iakakuilei (w) reflected in the kui or needle style of lei making

Hi'iakaikapoliopole (w) reflected in the bosom of Pele; also known as Kuka'iaka; ka Iaka;

Below is an account of the other siblings of Pelehonuamea mentioned in other Pele and Hiiaka sacred texts.

Hi'iakaikale'ale'i (w) reflected in the rising wave; wave in the water or in the lava

Hi'iakaikale'alemoe (w) reflected in the prostrating wave

Hi'iakaikapā'ikauhale (w) reflected in the thatching of the roof

Hi'iakaikapua'ena'ena (w) reflected in the bursts of intense red flame

Hi'iakaikapualau'i (w) reflected in the flower of the ti leaf plant

Hi'iakaikapā'ikauhale (w) reflected in the thatching of a roof

Hi'iakawāwahilani (w) reflected in the breaking open of the skies

Hi'iakanoholae (w) reflected on the point, as in a coastal out crop

Hi'iaka'opio (w) reflected in the younger version of an older sibling

By default of their lineage, Pelehonuamea and her siblings are directly descended from the sun, Kānehoalani (in other traditions recognized as Ka'ōnohiokalā) himself, and from Haumea, the core of the earth herself. When one considers the tremendous energy and responsibility that these entities have inherited from their parentage, and the natural processes that manifests through their birthright. Kānehoalani and Haumea continue to play a significant role in Pelehonuamea's journey, her deification, and her final role as creator of land.

The Pele Clans Myriad Body Forms

As we have discussed in Part II: Native Hawai'i Worldview, we know that there exists a hierarchical and kinship relationship of natural elements, one to the other. It is a common misperception that the sphere of influence of the deity, Pelehonuamea, is limited to the earthbound elements of magma, tephra, and fire, when in fact, Pelehonuamea's spatial occupancy of the world is inclusive of her multiple body forms and conveyed through her familial relations. When we consider the sphere of influence of the deity Pelehonuamea, we must observe that sphere as being influenced by other elemental/weather phenomenon, and having influence on those same phenomenon. For example, as the mahina or moon waxes towards her fullest phases, that energy should act upon the liquid lava under the ground; or when Pelehonuamea is active and her body forms are exposed to the air and ocean, there is an electrical or heat reaction in the form of lightning, thunder or water spouts; or that there may occur an increase in the amount of earth shakes during the wā ho'oilo (rainy season), particularly in the month of Ikūwā or Kaulua indicates that the volcanic energy is acting upon and reacting to other elemental phenomenon. Again, if we think of those phenomenon in a social-ecological sense, then we can think of them as family. Just as I am related and conduct myself in a certain way among my aunties, my siblings, my children, so does the relationships between natural phenomenon exists. Those phenomenon are both Pelehonuamea's kinolau or body forms and the numerous familial relations of Pelehonuamea, her ancestry, her parentage, her siblings, uncles, aunts, cousins, offspring, and so forth. The sacred texts of the Pele and Hi'iaka story reiterate this point constantly through the replication of family personages,

their form, their function, and their contribution to the natural cycles of Hawai'i's volcanic land, sea, and sky-scape.

The sacred texts that illustrate the above discussion, quite descriptively, are the groups of sacred texts practitioners call the "Hulihia". Pualani Kanahele, author of "Ka Honua Ola, The Living Earth" (1989) offers the following translation and guide to the phenomenal realities of this sacred text that establishes the migration of Pelehonuamea and her relations to Hawai'i, and depicts one of the first major eruptions occurring in the Hawaiian chain as a result of their arrival in Hawai'i. As we saw in Part II, in our observation of the Kumulipo text as an illustration of the native Hawai'i's macrocosm of relations, we are observing the macrocosm of relations specific to Pelehonuamea. Each entity that you come upon from the first line to the very last is all relatives or body forms of the Pele. This Hulihia is just one of dozens, each of them describing particular volcanic behavior from the ejecting of tephra onto the landscape to the causing of ocean quakes and subsequent tidal waves.

Hulihia Ke Au Ka Papa Honua O Kona Moku
(Ka Hoku O Hawaii, Hawaii Language Newspaper, Poepoe)

1. Hulihia ke au ka papa honua o kona moku
The tide of time to be overturned is here, yes, the very foundation of Her island
2. Hulihia kūlia mai ka moku o Kahiki
A complete change, the island of Kahiki was outstanding
3. 'Āina no Kahiki i ka lā kahi
Kahiki, a land from the beginning of time
4. 'Āina ho'owali'a e Haumea
A land made supple by Haumea
5. Ho'omoe akula Kahiki kū
Then laid out towards Kahikikū, the horizon
6. Kulapa mai ka ulu wela, 'o mai ke ahi
The growing heat multiplies, as the fire digs forth
7. Ke'ehi akula no e nalo kapua'i, ʻē
Stamping out everything to conceal the footprints
8. Kapua'i akua no Pele

The prints of the Goddess, of Pele

9. Ke ke'eke'ehi wale lä no i ka lani
Treading yonder towards the heavens

10. Hä'u'le u'ina i Polapola
Finally falling splashing at Borabora

11. Noho i ka lau ha'a o ka moku
To dwell in the low lying vegetation of the island

12. Hina Kükulu o Kahiki
The pillars of kahiki has fallen

13. Hina ka 'ömuku o ka makani
The wind shafts blew a straight course

14. Hina ka pae 'öpua ki'i ke ao
The light fetching clouds have dropped

15. Hina ka'önohi 'ula i ka lani
The red eyeball dwelling the heavens has fallen

16. Kanewenewe 'öpua i ke kai
The billowy clouds are at sea

17. Ea mai ana ma Nihoa
Rising up at Nihoa

18. Ma ka mole mai o Lehua
At the very foundation of Lehua

19. Mai Kaua'i nui
From great Kaua'i

20. O'ahu a Moloka'i
O'ahu to Moloka'i

21. Läna'i a Kanaloa, mai Maui a Hawai'i
From Läna'i to Kanaloa, then Maui to Hawai'i

22. Ka Wahine 'o Pele i hi'a i kāna ahi
Comes the woman, Pele, to spark her fires alive

23. A 'ä pulupulu kukuni wela ka lani
The kindled fire alights, blazes, heated are the higher extremities

24. He uila ku'i no ka honua
Lightning strikes the earth

25. Hekili pa'apa'ina i ke ao
Thunder crackles at the light of day
26. Pöhaku puoho lele i luna
Stones exploding, flying upwards
27. 'Öpa'ipa'i wale ka Mauna
The mountain trembles
28. Pipili ka lani, pa'a ia moku
The heavens descend, firmly touches the land
29. Nalo Hawai'i i ka uahi a ka Wahine
Hawai'i is concealed in the smoke of the Woman
30. I ka lili a ke Akua
All because of the anguish of the God
31. Ke lauwili nei ka makani,
The winds are twisting
32. Ho'anoano mai ana nä 'eho lapa uila
The increasing flashing lightning are revered
33. Hekili wawahi ka lani
Thunder shatters the heavens
34. Kū loloku ka ua i uka
The rains fall in torrents in the uplands
35. Ku'i ka hekili, ne'i ka 'ōla'i
With the crack of thunder, the earth rumbles
36. Lele kapu i kai
Tot the sacred altar at sea
37. Hiki lele ai i lalo o Kānelūhonua
Reaching below to the depths of Kānelūhonua
38. 'O Kānepuahiohio wili
Kānepuahiohio whirls
39. Wili 'ia i uka, wili 'ia i kai
Twists upland, twists seaward
40. Wili 'ia i luna, wili 'ia i lalo
Twists up and down
41. Wili 'ia i ka ua
And whirls through the rain

42. I ka hō'ole aku, hō'ole mana
Because of the denial of power
43. Ka ho'omālau e ka ho'omāloka
The irreligious, neglecting the gods
44. Ke 'Āpapanu'u, ke 'Āpapalani
Those of Ke 'Āpapanu'u and Ke 'Āpapalani
45. 'O Manokalanipō, 'o ke aka leihulu
Manokalanipō, the reflection of royalty
46. Hulu o manu kiu, 'o manu ahiahi
Feathers from the birds who secretly observe and tattle
47. 'O manu 'āha'i lono
The birds who bring news
48. Ha'ina a'e ana ka mana o ko'u Akua
Telling of the strength of my God
49. I wahi nei lä e ha'ina ho'i
A declaration is made abroad, announce the news
50. Kükulu ka pahu kapu a ka leo
The voice of the sacred drum is upheld
51. He ala hele, he ala muku
A pathway, a short path
52. No Kāne lāua o Kanaloa
For Kāne and Kanaloa
53. He kī ho'iho'i kanawai
A law provided for swift restoration
54. He kai 'okia kanawai
A sea-separating edict
55. He kua 'ā kanawai
A decree of the burning back
56. No Pele, no ko'u Akua lä
For Pele, for my God!

Dr. Kanahele provides us with this brief contextual understanding of this sacred text and vastness of Pelehonuamea's sphere of influence and her many sacred body forms (pp. 90-91).

"Haumea, the female deity of land is mentioned first. She is the mother of Pele and the one who represents female fertility. She would naturally be the one given credit for nourishing and nurturing land. This huluhia includes references to land existing from the beginning of time [Kahiki]. The chant continues with the meeting place of sky and earth or male and female. This area is called Kahikikū or the horizon or more specifically the sky section of the horizon...Kahikikū is a reference to the pillars which hold up and separate the sky from the earth. The concept of the pillar usually indicates an earlier period of time where domains, rights, laws, personalities, lineages, and responsibilities were established. Pele's primary function, which is volcanic eruption, also impacts upon the atmosphere. Thus Pele's kinolau are also thunder, lightning, heavy rains, earthquakes, whirlwinds, smoke, steam, cloud forms, and fire. These are the kinolau which connect Pele [in familial terms] to Kāne and Lono. These lines reveal yet another Kāne form, Kānelūhonua, whose full name is Kānekōkalalūhonua or Kāne of the quaking coral. The tremors of Pele are felt below the surface of the ocean to the coral beds to another dimension covered by the movement of Pele."

Kanawai Pele

The sacred text below provides insights into the kapu or kanawai or laws associated with Pelehonuamea, her body forms, and her relations. Before we begin with the Kulia chant, however, I would mention the kanawai Pele or the kua 'a or law of the burning back. The kanawai kua 'a prohibits any entity to approach the deity from the back. This kanawai marks the volcano entity as the offspring of the sun, the sun whose own kanawai prohibits any means of approach. The ultimate sacrifice for this error is death. This is in the previous huluhia chant on line 55. Let us continue.

The next poetic text or mele comes from a group of sacred texts practitioners and scholars call the "Kulia". The Kulia texts reiterate the multifarious forms of Pelehonuamea. Kulia e Uli is a supplication for life, a plea for help by Pelehonuamea's younger sister. The prayer is an illustration of Pelehonuamea's forms, functions, and family members, levels of sacredness and the kapu or prohibitions that delineate her sacredness. I have highlighted the different forms of Pelehonuamea's relations (in green), their functions (in blue) and the kapu or laws associated with Pelehonuamea (in red). You will see that where green and blue meet, the form and function of each of Pelehonuamea's relations are depicted. Red indicates the restrictions of who may approach Pelehonuamea and in what manner and, equally important states the laws of nature as it relates to volcanic activity.

Kulia e Uli ka Pule Kala ma Ola

(Mai loko mai o Holo Mai Pele, pp. 11-13)

Kulia e Uli ka pule kala ma ola
 Kulia i mua, i ke Kahuna
 Kulia i ke Alohilani
 E ui aku ana au
 I kupua o luna nei, e
 O Iliouliokalani
 O Ilioehu, o Iliomea o ka lani
 O Kukeaoiki, o Kukeaopoko
 O Kukeaoloa o ka lani
 O Kukeaoawihwihi'ula o ka lani
 Ua ka ua, kahi wai a na Hoalii
 O nei ka pali ma Kowawa
 O Kupinai, o Kuwawa, O Kuhailimoe
 'O Haihailauahea, O Mauakealiihea
 Kanakaloloa o ka mauna
 O Kupulupulu i ka nahele
 O na Akua mai ka waokele
 O Kulipeenuiaiahua
 O Kikealana, O Kauahinoelehua
 O ke Kahuna i ka puoko o ke ahi
 O 'I'imi, o Lalama
 Ku i ke ahi, ka hekili
 Nei ke olai
 Olapa ka uila
 Lohe o Kanehekili
 Ikiiki ka malama ia Kaulua
 Elua wahine i hele i ka hikina a ka La
 O Kumukahi, laua o Haehae
 Haehae a ka moe
 O Kapoulakinai, he alii
 E hoi, e komo i kou hale
 O Kealohilani
 E auau i kou kiowai kapu
 O Ponahakeone
 E inu i kou pu'awa hiwa
 Awa papa a ke Akua
 I kanaenae no Moehaunaiki, e
 Hele ae a komo
 I ka hale o Pele
 Ua huahuai Kahiki, lapa uila
 Pele e, huai na ae ana
 Huaina ae ana-
 Ka mana o kou Akua i waho la, e
 O kukulu ka pahu kapu a ka leo

 Hookiki kanawai
 He kua a kanawai
 He kai okia kanawai
 He ala muku no Kane me Kanaloa
 He ki hoihoi kanawai

Uli, heed this prayer for life
 From the call of your devoted
 Stand in your heavenly court
 I am inquiring
 Who are the gods above
 Dark dog cloud
 Yellow dog, red dog
 Small Ku cloud, short Ku cloud
 Long Ku cloud
 Ku of the lacy red cloud
 Rain falls, water of the clan
 The cliffs of Kowawa tremble
 Kupina'i, Kuwawa, and Kuhailimoe
 Ha'iha'ilauahea & Mauakeali'ihea
 Tall ones of the mountain
 Kupulupulu of the forest
 Gods of the wet forests
 Kulipe'enui'aiahua
 Kikealana & Kauahinoelehua too
 Priest of the burning hot flames
 'I'imi & Lalama are present too
 Fires crack, thunder
 Earth shakes
 Lightning flashes
 Kanehekili is heard
 The month is sultry because of Kaulua
 Two females head towards the rising sun
 They are Kumukahi and Ha'eha'e
 Ha'eha'e is the reclining
 Kapo'ulakina'u the chiefly one arrives
 Go to your residence,
 Kealohilani
 And bathe in your sacred pool
 Ponahakeone is the pool
 Drink of your sacred 'awa cup
 'Awa papa is 'awa for the gods
 Supplication for Moehaunaiki
 Then, you may enter
 The home of Pele
 Kahiki convulses, lightning claps
 A sign of Pele's eruption
 Eruption
 is the mana of my god
 The voice establishes the point at which no
 One may enter
 Enforce the laws
 Law of the burning back
 Law of boundaries
 A short path for even Kane and Kanaloa
 Law of restoration

No Pele, no kou akua la e

For Pele, my deity

As Pele's older sibling, Kapo'ulakina'u prepares to approach the crater. Her protocol requires her to cleanse in fresh water pond of Ponahakeaone, to partake of the 'awa papa (type of 'awa), and to prepare an invocation for Moehaunaiki (an epithet for Pele) as she approaches. On the fifth line from the bottom, we find the kanawai kua 'a, or the law of the burning back. Even the laws of Kāne and Kanaloa, who are primary resource deities and relations of Pelehonuamea, whose kapu are in themselves difficult to succumb to, must alter their restrictions to allow Pele her path. So, that the entities Kāne and Kanaloa are mentioned in this sacred text clarifies that even gods of their status are bound to the law of nature that takes the creative process of land-making into serious consideration.

Take notice of the law of restoration in the second to the last line. This edict takes into consideration the necessity of the extension of land, however, it is also apparent that in the building of new land, there may be losses of a multifarious nature. The edict of "ki ho'iho'i kanawai" states that there shall be restoration, for that is the nature of things. It is Hi'iakaikapoliopole along with her water and forest relations like Kumukuhali'i, Kupulupulu, Ha'iha'ilauahea, Ma'uawahine, and so forth whose responsibility it is to maintain this balance by causing the rains to come, the vegetation to grow, and the wind to animate to disperse seeds.

As this sacred text states, Pelehonuamea's domain, is shared not only with her sister, Hi'iakaikapoliopole, but also with a milieu of relations, volcanic, vegetation, animal, and elemental. Each personage may have singular or plural forms and functions. Their forms are sacred by reason of their life sustaining functions. They are sacred objects, places, people, things, thought, space, season and time who include and are not limited to:

sun, magma core, tidal waves, the outreaching atolls of the Hawaiian archipelago, sulfur, steam, all manners of fire, thunder, lightning, caves, earth quakes, sea floor quakes, forest land snails, the adze, all manners of vegetation from moss to tree, all parts of plants from the bloom of the mamane to the bloom of the koai'e, landslides, shark, ocean shells, the darkest carpets of forests, craters, all manner of rock,

crystal or mineral, fresh water, unconscious possession, fissures, 'ie'ie, hula, a style of lei making, procreation, cloud formations, wind, water spouts, the most ancient fires (lava), the new fires (lava), families in ancient and contemporary Hawai'i who carry fire names, certain varieties of taro, fish, banana, and sugar cane, certain colors, chants and chant styles, hair and particular parts of the body, and a multitude of others, again, too numerous to mention.

These entities and the space and place that they occupy are sacred or necessary to the ecological balance of Pele's region.

DRAFT

Na Pana ‘Aina O Pele: Pele’s Pulsing Landscape

The purpose of this section was, originally, to align certain points on a map with places and spaces in the Pele landscape that are “more sacred” than others. In other words, which point over the Pele landscape could air tours pass over or through with the least effect on Hawai’i cultural life ways or practice. However, in the previous discussions, as stated over and over again, a simple position on a map whether or not that particular position has a name does not, by default, make the space sacred. However, in the name of good form and in the spirit of cooperation, below is a detailed (however, not exhaustive) list of land bound sacred spaces throughout Pelehonuamea’s landscape, “from Mauna Loa to the ocean” within the geographical borders of the Hawai’i Volcanoes National Park.

Based on the native Hawai’i worldview of place and space, as iterated throughout the document, there are numerous features (cultural objects) whose kapu corresponds directly with a feature’s function in ritual or in the natural scheme of things and the name as it associates with a particular deity or practice. The following information was from obtained from a number of sources including maps, previous place names studies, current published and unpublished texts, Hawaiian newspapers, chant texts, land boundary testimonies, stories, articles, and the Kupuna Consultation Group. To my surprise, there is no comprehensive documentation to date of all of the named places of the Pele landscape within the Parks boundaries. Herein lays an opportunity for further investigation. Therefore, with the help of my mentor and colleague, Keola Awong, I attempted to organize the information by ahupua’a, place/feature/object and description from east to west. The table below defines each identified feature. The definitions will help in the decoding of the description

Pana ‘Aina	Feature
he pali	cliff
kahakai,	beach,
lua pele,	crater,

pu'u pele,	cone,
pohaku,	rock,
moku,	island/districts,
'ili,	smaller land division in ahupua'a,
hono,	cove or bay,
kulana kauhale,	village,
heiau,	temple,
ahu,	shrine,
mauna,	mountain,
ki'i pohaku,	petroglyph,
kaha one,	sandy area,
kipuka	a remaining stand of forest
wahi ohi wai,	water gathering area,
owa/kowa,	crack,
alahele,	train,
ala a Pele,	Pele's trail,
pa holoholona,	animal pen,
palena,	boundary,
mokuli'i,	islet,
lae,	lae,
kumu pali,	base of cliff,

ko'a,	any shrine (man made or natural) that attracts particular elements like fishing shrine, rain shrine, etc.;
papa,	shelf or flat area in the ocean,
ana	cave,
lua wai	water pit,
lua wai wela	hot water hole,
pae wa'a	canoe landing,
'apana ahupua'a	piece of an ahupua'a designated by park boundaries,
kukae pele	sulfur spot,
puna	spring (on land or in ocean),
kihapai/ulu	grove,
kaheka	tidal pool
pali	cliff,

*Indicates feature with no known name or Hawaiian-ized name for English references

Na Pana 'Aina O Poupou – Place name of Poupou

- Ka'ili'ili kulana kauhale a komo ma Pulama
- Kupapa'u he lae
- Poupou 'apana ahupua'a; kahakai; pali

- Poupou kai kahakai; pali
- Na Pana ‘Aina O Pulama
- ‘Aikua kahakai; pali
 - Waha’ula heiau
 - Pulama ‘apana ahupua’a
 - Oloua ana
 - Ka’ili’ili kulana kauhale a komo ma Poupou
- Na Pana ‘Aina O Kamoamoa
- Kamoamoa pali; kahakai; kulana kauhale
 - Lele Kawa he uapo kai/pohaku; kahakai; pali
 - Pu’umanawale’a pu’u; kulana kauhale a komo ma Lae ‘Apuki
 - Pu’u Kamoamoa pu’u
- Na Pana ‘Aina O Kahauale’a
- Napau lua Pele
- Na Pana ‘Aina O Lae ‘Apuki
- Pu’u Manawale’a pu’u; kulana kauhale a komo ma Kamoamoa
- Na Pana ‘Aina O Panau Iki
- *Ulu Niu (Panau Iki) he ulu niu; kahakai; pali
 - *Kaheka kaheka
- Na Pana ‘Aina O Panau Nui
- Ka Lae ‘o Koheo he lae
 - *Ka Lae ‘o Koheo a i Holei ma kai pali lawai’a
 - Ka’ena he lae
 - Pu’uloa ki’i pohaku; pu’u; pohaku piko
 - Pua’ialua he lua
 - Pu’uhuluhulu pu’u
 - Makaopuhi lua Pele
 - Kanenuiohamo lua Pele
- Na Pana ‘Aina O Kealakomo
- Kealakomo kulana kauhale; wahi lawai’a
 - Naulu he ulu la’au; he alahele
 -
- Na Pana ‘Aina O Kahue
- Kahue papa; kahakai; pali
 -
- Na Pana ‘Aina O ‘Apua
- ‘Apua he lae; palena o Ka’u me Puna\
 - Holei Pali pali a komo ma Keauhou, Kahue, Kealakomo, Panaunui
 - Mauna Ulu he pu’u; mauna

Na pana 'aina o Keauhou

- Keauhou
- Kilauea
- Holei Pali
- Ahua Kamokukolau
- Alahahele o Mauna Loa
- Alahahele o Pu'u 'O'o
- Halape
- Halema'uma'u
- Ha'a (ho'o)kulamanu
- Keanakako'i
- Kekekaniho
- Kilauea
- Kilauea Iki
- Kipuka Kekake
- Kipuka Ki
- Kipuka Puaulu
- Luamanu
- PolioKeawe
- Puhimau
- *Puna o Keauhou
- Uwekahuna
- *Puko'a
- Puhimau

he lae; kahakai; 'apana ahupua'a
ka lua Pele;
he pali a komo ma na ahupua'a 'Apua, Kahu'e,
Kealakomo me Panaunui
palena o Keauhou me Kapapala
alahahele
alahahele
kahakai/kulana kauhale?
lua Pele
kukae pele; ma uka o ka lua pele
lua Pele
palena o Keauhou me Kapapala
lua Pele
lua Pele
kipuka; pa holoholona
kipuka
kipuka
lua Pele
pali a komo ma 'Apua
lua Pele
puna ma loko o kai
'aina ma ka'e o ka Kilauea
he wahi puko'a nui ma kai
'aina ma'u wela; lua

Na Pana 'Aina O Kapapala

- *Pae Moku
- Hilina
- Ka'aha
- Kalu'e
- Kamakai'a
- Kea'oi
- Ki (a) wikohoni
- Kilauea
- Kipuka Pakekake
- Kipuka Papalinamoku
- Mauna Iki
- 'Opihinehe
- Pohaku Hanalei
- Pu'u Ka'aone
- Pu'u Kapukapu

kaha one
pali
kahakai
pupupu hale; mawae; kahakai
mau pu'u; he ko'a paha
mokuli'i
wahi ohi wai a lua wai paha
kipuka; pa holoholona paha
kipuka
pu'u
pali; kahakai
pohaku; kahi e lewa ai ka la ma spring equinox?
pu'u
pu'u; pali;

Na Pana 'Aina O Ka'ala'ala

- La'ahana
- Na Pu'u O Na 'Elemakule

palena o Ka'ala'ala me Keaiwa
mau pu'u

- Papalehau he lae
- Na Pu'u Pili Koa'e pu'u; lua
- Na Pu'u 'Ula'ula mau pu'u

Na Pana 'Aina O Kahuku

- Akihi pu'u
- Halepohaha pu'u; lua
- Kamakapa'a 'a'ole maopopo
- Kapo'ala'ala pu'u; lua
- *Kapua'i Akua mau pu'u; mau lua mai Mokuaweoweo a i Na Pu'u O Pele
- *Kahuku-'Ainapo Alahele alahele
- Ke 'a Pele 'O Iki he ala 'a o Pele
- Ke 'a Pohina he ala 'a o Pele
- Ke 'a Po'omoku he ala 'a o Pele
- KealaaLea mau pu'u
- Keau pu'u; lua
- Kipuka Kapulehu kipuka
- Kipuka Keana Bihopa kipuka (?)
- Kipuka Mamane kipuka
- Kipuka Nene kipuka
- Kipuka Noa Kipuka
- Kipuka Pahipa kipuka; pa holoholona
- Kipuka Pepeiau kipuka
- Kipuka Pe'ehi kipuka
- Kipuka 'Akala kipuka
- Na Makua Ha'alou ohi wai a ma'ukele paha
- Na Pu'u Kulua pali; ala a Pele
- Ohiawai wahi ohi wai;
- Pali O Ka Eo pali
- Punalu'u Kahawai wai mäoli; he puna
- Pu'u Hapaimamo pu'u
- Pu'u Ihuanu pu'u
- Pu'u Kaone pu'u; pali
- Pu'u Keokeo pu'u
- Pu'u Koa'e pu'u
- Pu'u Kou pu'u
- Pu'u Lenalena pu'u
- Pu'u Lokuana pu'u
- Pu'u Nanaia pu'u
- Pu'u Ohohia pu'u
- Pu'u Akala pu'u
- Pu'u 'Ohale pu'u
- Pu'ueo Pali pu'u
- *Upper Eastern Section wahi ohi wai; wao akua
- Waiopai wai mäoli; ana paha

Na Pana ‘Aina O Humu’ula

- Pukauahi pu’u; lua; mawae
- Pu’u Mahu A Pele pu’u
- Pu’u Kapua’i (Dewey) pu’u
- Pohaku Hanalei Pohaku; pu’u a komo ma Kapapalo me Ka’ohe
- Luawai luawai māoli

Na Pana ‘Aina O Ka’ohe

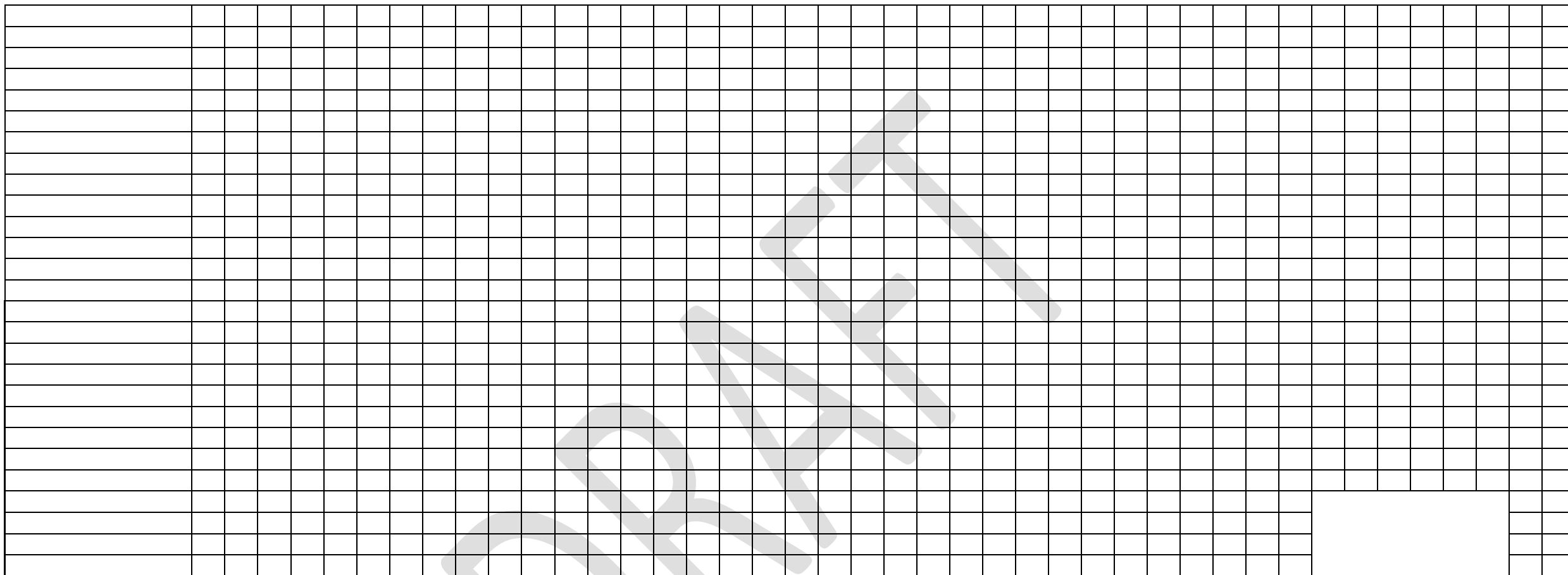
- Lua Ioane lua; pu’u

Na Pana ‘Aina Ola’a

The table that follows, on pages 58-9, details a list of major and minor primary, secondary, and tertiary resource deities particular to the Pele landscape and their corresponding space, place, object, feature, and resource. The stars in the cells correspond to the sacredness or kapu of those deities as defined by native Hawai’i worldview. Some of the land descriptions in the table above are included in this table. This table, however comprehensive, is not exhaustive. This is a task for another time and purpose.

Table: Deities of the Pele Landscape, Their Space, Kinolau, & Kapu

Horizontal Layers (Papa)	Space Above										Earth Level										Sub terrain						Ocean & Submarine															
Resource, Element, Deity	sun, planets, stars	atmosphere	air currents	clouds	moisture, mist, fresh water	steam, gas	winged biota	lightening, thunder	time & dome of the sky	beginning of life cycle, birth	thought	island	summit	crater	pu'u	kapua'i Pele- faults/crater chains	fertility, cliff features	kipuka, vegetation	fire, molten & solid lava	heat & temperature	earthquakes	earth biota	lava tube, cave	molten lava	fresh water	earth core, interior earth	earthquakes	vegetation	creatures	surf, waves	tidal wave	fresh water	surf, waves	earthquakes	vegetation	coral, reef	marine biota	fertility, spawning	islets, atolls	thought	end of life cycle, death	
Haumea										*																		*														
Kanehoalani																																										
Kane				*	*			*		*	*																											*				
Kaneikawaiola					*																																					
Kanehekili								*																																		
Kuwahailo																																										
Kuha'imoana																																			*				*			
Kumokuhali'i																																										
Kanaloa																			*	*					*							*			*		*		*			
Lonomakua																			*	*																						
Wakeakahikoluamea																																										
Papahanaumoku																																										
Ho'ohokukalani	*																																									
Pelehonuamea					*							*	*	*																												
Namakaokaha'i																													*				*									
Kuku'ena																																										
Kapo'ulakina'u																																										
Uli																																										
Kanekamohoali'i																	*	*																					**			



Personal Practice as Continuum

Of the practices most familiar to me, is that of hula. I am a practitioner of the hula Pele for well over 35 years. My grandmother and her mother before her on the Ahi'enaopuna side of my family practiced the same traditions in the landscape of Pele. My Ka'u relations, Kanaka'ole, were also practitioners of the rituals of Pele. The practice of introducing our family members individually to the Pele, still persists from the time of my grandfather's grandfather.

Hula in the popular sense is the "art of dance". Hula practitionership, however, includes the ritual practice of calling on and directing certain energies for a particular purpose. The praxis of hula as practiced by particular halau includes a serious and dedicated commitment to maintain a certain ecological balance through oral traditions, movement, and direct participation and communication with the natural environs. One practice, in the most comprehensive sense, particular to Hawai'i island, (although not exclusive to Hawai'i island) is specifically dedicated to the hula Pele, or a form of dance execution and text that ritually conveys Pelehonuamea and her sphere of influence.

In the kuahu ritual, initiates of this halau or formal traditional school of dance are trained in the proper dressing of the kuahu. The kuahu is the hula shrine positioned in the halau hula or hula school to ensnare and direct the requisite energy for both the dancer, the kumu, and the kuahu itself. The dressing of the kuahu requires at least 10 years of previous training before one is allowed to access the forest in order to supply the kuahu with the appropriate hula gods. Of the gods represented on the kuahu are Laka, Kane, Kapo, Lono, Haumea, Pele, and to a degree, Kanaloa. The kuahu is essentially a microcosm that space. For the ritual practice of hula the spaces that are most important are craters, pu'u, coastal as well as mountain forests, kahakai, and coral features because all of these elements are necessary for the hula practitioner to convey, communicate, and transport through certain physical and spiritual portals.

For the hula practitioner and descendant of the Pele clan, access to the deity Pele is both desired and feared. We are well aware of her edicts and her status as a primary resource deity. There

are particular chants that I know of and that are still found in the written and published stories of the Pele and reiterate the kapu of silence over and over. Silence, in most traditions of Hawaiian practice, is essential for learning, understanding, observing, and respecting one another's space, thoughts, and kapu. Silence, in the presence of Pelehonuamea reflects one form of ultimate respect. To remain silent is to listen to the rhythms and learn from this place. Showing respect by limited or no access is another requisite for coming into proximity with the deity. This we know by personal experience and through the news of unfortunate and, what could have been, avoidable deaths in and around the Pele landscape. The kapu of no access was illustrated well in the Kūlia chant that requires even the great gods Kāne and Kanaloa must arrested their own prohibitions to allow Pelehonuamea her passage. It is important to add also that our deity Pelehonuamea, in her way, has prohibited all access to her central home, since March of 2007. It is a prohibition that native Hawai'i practitioners are happy to see. Here are some short but very helpful phrases that I was taught through my family practices and continue to teach my children. I hope they will be helpful for the readers of this document.

*“O Pele la ko'u akua, “
Miha ka lani, miha ka honua...”
Pele is my god
Silence the heavens, silence the earth
(Pele & Hi'iaka, p. 93)*

*...Hamahamau ka leo mai pane
Eia Pele, ko'u akua...”
(Pele & Hi'iaka, pp. 228-231)*

*Quiet the voice, do not respond
Here is Pele, my god*

*“Kapu ke nū ke ‘i
I ka pūā o ka leo
I ka hamahamau, hāmau kākou
I ke kunou maka
I ka āwihi maka
I ka ālawā iki...”*

*Any utterance is forbidden
Any resounding of the voice
It is silence All be silent
The eyes are down cast
Not even a wink
Avert the eyes
This is the kapu of Pele!*

(Pele & Hi'iaka, p. 6)

Part V: No Pele, No Hi'iaka

Ka Honua Nei, Ka Honua Lewa, Ka Lani I Luna

By

Kekuhi Kealiikanakaole

DRAFT

Conclusion

That air space is the property and under the control of any one entity, in the context of a native Hawai'i social-ecological perception, is inconceivable. Perhaps the fact that the space above and the space below Pelehonuamea's axis of creation is, in the profane context, a mutable discussion if in fact the conception of such an idea were suspended in antiquity. However, it is not. To position a people and their life practices as secondary to the economic needs of a few is to celebrate that groups' own spiritual and familial exile. In the records of the Cultural Resources Management Unit, it is shown that over the past five years alone, 2,000 (includes duplicates) native Hawai'i practitioners have requested access to this area for the purpose of preparing for ceremony and ritual, or for access to continue traditional fishing practices. Ceremony and ritual take place most commonly in the kipuka, the forested areas, at Kīlauea and other craters, at coast where new lava is being formed, and at places where private family ceremonies are conducted, including the visiting of grave sites. Traditional fishing activities are conducted along the whole of the coastline inside and outside of the boundaries of the Park. More historical practices of hunting occur in regulated areas of the Park. Medicine collection requires one to be in the lightly and densely forested regions. Of these practitioners, not one has requested access by air. That should alert us and remind us that the basic relationship of the kanaka and his landscape is best practiced on the land.

Access to the deity by air disregards all of the kapu between the kanaka and his/her relatives in nature. To invade the sacred space for the mere convenience of touring, a profane act in itself, is to slice into the bodies of the sky deities, Kānehoalani, Wākea, Kauilanui, Ka'ekaokalani, and Ho'ohokukalani. To approach Pelehonuamea from above outright ignores the kua 'a kanawai the law of the burning back and positions one's status above the deity. It is to tear the symbol of the deity down from the wall of the church and proclaim it a mere statue. The reproach for such actions in ancient times was death. Although we do not admit in our society that death is an appropriate exchange, the natural landscape of Pele, has often times claimed the lives of those who approach too closely. Perhaps her body forms,

gases and steam, rise into the atmosphere and mingle with the elements within her sphere of influence, but she is first an earth bound entity. Pelehonuamea is earth bound which means that in our approach and observation of her creative energies, we must remain earthbound as well.

Our Recommendation: IE HOLO E!

Pele Hanoa: “we must protect the park because it is sacred, both below (on the ground) as well as above. The park is not a place to make money to destroy what we have been protecting....helicopters and other aircraft should be forbidden

Pua Kanahele stated: “We don’t want an ATMP as it will not benefit Native Hawaiians and it will not benefit the natural life here and it will not benefit the park.

Pua Kanahele: “That is what we want, no air tours. I can give you chants saying where Pele lives, this is the residence. They can do whatever they want outside. Over the park includes Mauna Loa, all of Puna

John Replogle: “NPS’ initial intent on setting aside land in perpetuity was for future generations to enjoy on the ground. There should be no air tours at any park, because they take away from the intent of what parks were meant to be for. A small group of people are making money flying over the park. Our land is so limited.

Keolalani Hanoa: “...enforcement; I’ve seen choppers flying right above telephone poles. How do we get enforcement of laws? Nothing seems to work it has been an ongoing problem for years. I am a practitioner and that in the Hawaii State laws, article 50 require that all new projects complete a cultural impact statement. This needs to be evaluated because it is a sacred place for Native Hawaiians.”

Pualani Kanahele: “The alternative that is most palatable is a complete prohibition. It makes sense because it takes care of all the problems. In the report there was no discussion on hierarchy of sacred places and impacts there.

The birth of new land is most sacred. Also in a cultural assessment you must consider impacts on native practices. The cultural impact statement will not carry any weight unless the native views are reflected and stated within. There is no point to the meetings if they are not going to be heard and followed through.

John Raplogle: “We are going through all of this process for only 14 companies. We should be able to just say no. Here we are making accommodations for only a few, I’m for prohibition, no flying over the park.”

The final and only recommendation of this practitioner and descendant of the Pele Clan and in respect to the voices of the honorable Kupuna Consultation Group is strong support for an In-Whole Prohibition on Commercial Air Tour Operations over the Hawaii Volcanoes National Parks, (HVNP) (See Appendix XX).

le Holo E! It is done!

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Appendix

HAVO – Kūpuna Consultation Meeting Minutes
Wednesday, July 13, 2004
KMC – ʻŌhiʻa Room
9:00 a.m.

Attendees –

Kūpuna: Pele Hanoa, Pua Kanahale, John Kaiewe, Emma Kauhi, Jamie Moana Kawauchi, Fred Park, John Replogle, Ululani Sherlock
HAVO: Janet Babb, Bob Dunkley, Aleta Knight, Catherine Lentz, Kūpono McDaniel, Cindy Orlando, Jay Robinson, Laura Schuster, Jennifer Waipa, Mardie Lane, Bob Dunkley, Elizabeth Bell
RCUH: Keola Awong
Guests: Nani Langridge (Ulu Sherlock's sister), David Kawauchi (Jamie's husband), Nona Wilson (Emma Kauhi's caregiver)
NPS: Howie Thompson, Nicole Rossbach
FAA: Brian Armstrong

The meeting was opened with a Pule by Pele Hānoa.

I. Air Tour Management Plan (ATMP).

Cindy Orlando introduced Howie Thompson and Brian Armstrong and explained that they were at this meeting to initiate the process of listening to concerns about the plan. Howie gave a brief background as to how the ATMP process came about. The criteria were established by NPS, FAA, and HAVO and Haleakala were at the top of the list, plus other parks except for USS Arizona. The objective of an ATMP is to prevent or mitigate significant adverse effect. The HAVO ATMP process is underway and public scoping was completed in March. Brian expressed the importance of doing their (FAA) homework to determine the impact air tours would have on cultural sites and wildlife resources. Air tours are not expected to have direct impacts. The FAA and NPS are moving towards developing alternatives to minimize or mitigate impacts on cultural resources and other types of resources. Brian is here to learn more about cultural resources, your use of resources, and how air tours relate to this.

The general alternatives could be:

- 1) total in-park ban on air tours;
- 2) no action (current policy remains in effect)
- 3) no restrictions
- 4) other alternatives

Mitigation that could be in the ATMP includes: partial bans, restrictions on time of day, altitudes, routes, special events, operation restrictions, caps, and incentives for quiet technology.

Brian commented that they have the authority to keep site disclosure confidential. Pele Hanoa commented that we must protect the park because it is sacred, both below (on the ground) as well as above. She also commented that the park is not a place to make money to destroy what we have been protecting and feels helicopters and other aircraft should be forbidden not only because of the noise but also because there have been too many accidents. She is glad that the park is here to monitor and take care of the land. She also gave Keaukaha as an example of being so close to the airport and the huge impact the noise has had on that particular community. Brian asked her about boundary concerns, is there an area that is more important to you or is it the entire park. She indicated "Mauna Loa to the ocean."

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February 28, 2005

Honorable Senator Daniel K. Akaka
141 Hart Senate Office Building
Washington, D.C. 20510
Tel: 202.224.6361
Fax: 202.224.2126
E-mail: Senator@akaka.senate.gov

‘Ano ‘ai aloha e Senator Daniel K. Akaka,

RE: Strongly, support In-Whole Prohibition on Commercial Air Tour Operations over the Hawaii Volcanoes National Parks, (HVNP).

Mahalo nui loa, for the opportunity to express our strong support for the **In-Whole Prohibition on Commercial Air Tour Operations** over the Hawaii Volcanoes National Parks, Air Tour Management Plan (ATMP) project description under **Part 3 – Federal Action and Range Alternatives**, paragraph **B. Range of Alternatives, Table 1 – Potential Mitigation Measures.**

We, are an informal community - based Na Kupuna Consultant Group, invited by the Hawaii Volcanoes National Park administration to assist with appropriate recommendations to native Hawaiian issues and/or concerns - culture, history, values, traditions, religion, burials, language, name places, environmental stresses, ecosystems, bionetworks, animals/plants/ invertebrates, and more within the Park. We are kama‘aina (residents) from the districts of Puna and Ka‘u, mixed ethnicities - genders, credited with over six hundred years of experience, as well as traditional - professional knowledge.

Concerns and issues identified quantified our selection.

1. Sacredness of the entire HVNP from the summit of Mauna Loa to the sea, is to be acknowledged not to be abused;
2. Spirituality of the Park, in that science and historic/culture do not mix well on the whole;
3. Dramatic adverse noise pollution effects on endangered wildlife and their depletion;
4. Health and safety issues:
 - Numerous accidents;
 - Aircraft height regulations inadequate;
 - All types of aircraft have a negative impact on all areas of the Park, including training activities (exception (s): emergencies - fire, rescue and access to “special areas” for HVNP personnel);
 - No air tours over the Park, Mauna Loa, all of Puna - lava flows; and
 - Air tours take away from the intent of what parks were meant – perpetuity for future generations;
5. Inadequate enforcement and/or system of reporting air tour violations; and
6. Deficient monetary payment (s) to HVNP from air tour operators.

A. Sacredness and Spirituality

The entire Hawaii Volcanoes National Park is a wahi kapu (sacred place). From the apex of Mauna Loa - Kilauea Caldera – Pu‘u ‘O‘o, ‘Ola‘a Forest – Southwestern Rift Zone and the entire coast from

Kupapa‘u Point (Puna) to Kapao‘o Point (Ka‘u) is the home of “Tutu Pele”. She is an extremely vibrant and revered deity - aumakua (family god), who has resided there for hundreds - thousands of years. Renown, world over for her volcanic phenomenal fountains, her beautiful bursts of reddish orange glows – fires – flames. To her convents she is the protector, destroyer and the creator of “new” ‘aina (lands). Romantic legends – myths, ‘oli (chants), mele (songs) and hula (dances) of “Pele”, are easily dated back to the earliest Polynesian arrivals. Her everlasting spirit and those of her ‘ohana are felt amongst the mortals, in the forest, the makani (wind), the flora – fauna, molten rock, and honua (earth) – he lani i luna (heaven above), he honua i lalo (earth below) a me o ke kai (and of the sea). She has appeared in many dreams and visions of her ‘ohana and non-Hawaiians, summoning them to her domain. Often times, it is to remedy their ills...help in healing others. She is eternal.

Stories of the ancient “peoples”, either passing through or dwelling within the Park, tell of their adventures, ‘ohana (families), labors, births, deaths, professions, sports, and wildlife as scribed in the basaltic “rock art” – petroglyphs. Discreetly, burial grounds, heiau (temples), ahu (shrines) and village sites lay distributed along archaeology structures. Occasionally, ho‘okupu (offerings) – lei pua (flower garlands) – kalo – ‘uala (taro – sweet potatoes) – pule (prayers), are left by lineal descendants in honor of their kupuna (ancestors).

B. Noise Pollution and Endangered Wildlife

The Hawai‘i Volcanoes National Park is an ecological wonder, a unique habitat for indigenous bionetworks of endangered species. Countless, rare genus, vertebrates - invertebrates, birds, aquatic life, mammal, foliage, and those not yet categorized. They “often depend on specific pollinators and specific growing conditions or locations. Saving them from extinction is not only a matter of saving the plant/bird/invertebrate, but the community in which they live”.

The following is a sampling of HVNP’s endangered and threatened bird, animal, plant and marine species:

The current bird list begins with ‘A‘o (Newell’s Shearwater - threatened), the Nene (Hawaiian Goose), ‘Io (Hawaiian Hawk), ‘Ake‘ake (Band-Rumped Storm-Petrel), ‘Ua‘u (Hawaiian Petrel, ‘Akiapola‘au, Hawai‘i Creeper, and ‘Akepa (Hawai‘i Akepa). There are twenty-six endangered birds, 8 or 33.3% confirmed and 18 or 66.7% awaiting confirmation.

*****NERC 88/30 - JUNE 1988 (selections)

Effects of Aircraft Noise and Sonic Booms on Fish and Wildlife: Results of a Survey of U.S. Fish and Wildlife Service Endangered Species and Ecological Services Field Offices, Refuges, Hatcheries, and Research Centers.

Fish and Wildlife Services/U.S. Department of the Interior

6	1	HI	1987	USFWS/ Pacific Islands SE Area Office	Military/ small jet/ helicopter	Birds/ waterfowl/ raptors/ passerines/ mammals/ bats	The Area Office initiated a formal Section 7 consultation for a proposed USAF low-altitude route in Hawaii. It is believed the route could have an adverse effect on endangered species including the Hawaiian hawk, Hawaiian goose, and Hawaiian hoary bat, as well as several species of passerine forest birds.
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AFESC TR 88-14 /NERC-88/32/June 1988 (selections)

Effects of Aircraft Noise and Sonic Booms on Domestic Animals and Wildlife: Bibliographic Abstracts

Engineering and Services Center/ U.S. Air Force/Fish and Wildlife Service/U.S. Department of the Interior

Sackler, A.M., A.S. Weltman, M. Bradshaw, and P. Jurtshuk, Jr. 1959. Endocrine changes due to auditory stress. *Acta Endocrin.* 31:405-418.

Female rats were subjected to 1-min or 5-min auditory stimulation with a mean intensity of 110 dB. Intense sound stimulation resulted in weight gain reduction and serious changes in both endocrine weight and histology. Adrenal hyperplasia, partial inhibition of ovarian activity, reduction in weight and vascularity of the uterus, and a loss in liver weight were noted. Significant changes in pituitary cell type occurred. Appetite was affected in sound-stressed animals and food consumption was significantly reduced.

White, C.M., and S.K. Sherrod. 1973. Advantages and disadvantages of the use of rotor-winged aircraft in raptor surveys. *Raptor Res.* 7(3/4): 97-104.

... The presence of a helicopter too close to a nest late in the nesting season may force young birds into premature fledging. <http://www.nonoise.org/library/animbib/animbib.htm>

Community comment:

"It doesn't do any good to protect all this wilderness if you don't protect the air space overhead," says Barry Stokes, president of a local group, Citizens Against Noise, and a longtime Sierra Club (SC) member who lives in Volcano, Hawaii. With more than half of all helicopter tour operators, Hawaii has borne the brunt of this new travel technology." (SC Newsletter, 12/94 01/95.) <http://www.sierraclub.org/planet/199412/ft-copter.asp>

NPC Noise Pollution Clearinghouse:

"Good neighbors keep their noise to themselves." FACT SHEET, Noise Effects on Wildlife (Excerpts)

Aircraft noise range: mild levels can increase heart rate and higher levels can do more damage to metabolism and hormone balance. Long, term exposure to noise can cause excessive stimuli to the nervous system and chronic stress that is harmful to the health of wildlife species and their reproductive fitness (Fletcher, 1980; 1990).

Ninety-eight species of birds and mammals on national park lands have been identified as threatened or endangered. The impacts on these species from aircraft noise are largely not documented. Some of the species became threatened or endangered because of loss of habitat. Further relocation necessary because of noise disturbance might not be possible for these species (National Park Service, 1994)...." <http://www.nonoise.org/library/fctsheets/wildlife.htm>

The Park's endemic nocturnal Hawaiian hoary bat (*Lasurus cinereus semothus*) is the only native land mammal in Hawaii. With a keen eye, from sunset to sunrise, it is possible to see these tiny animals.

The rare honu‘ea (hawksbill turtle – *Eretmochelys imbricata*) instinctively makes its way to established sites along the Park’s coast starting in April to lay their eggs. Then during late summer to early winter, the hatchlings begin their miraculous journey back to the ocean. The threatened honu (leatherback – *Dermochelys coriacea*), Kohola (whale – humpback – *Megaptera novaeangliae*), and Hawaiian Monk Seal (*Monachus schauinslandi*) are seen during their migratory quest.

Thirty-six (36) species of Odonates, an entire genus of twenty-five (25) damselflies (*Megalagrion*) unique to the islands, and two (2) endemic Hawaiian dragonflies: Blackburn dragonfly (*Nesogoria Blackburn*) and Giant Hawaiian dragonfly (*Anax strenus*) are noted. Of which, the rare *Megalagrion* is being considered to listed under the Endangered Species Act.

Twenty-three, federally known endangered plant species, of which 17 or 73.9% are located in the Park. A few are Kihi (adenophorus periens), ‘Ahinahina – (Ka‘u silversword - *Argyroxiphium kauense*), ‘Ahinahina (Mauana Kea silversword - *Argyroxiphium sandwicense* var. *sandwicense*), Uhiuhi (*Caesalpinia kavaensis*), Ha‘iwale (*Cyrtandra giffardii*), Hau kuahiwi (*Hibiscadelphus giffardianus*) and etc.

The *quiet* – natural sounds - serene – soothing – whisper of nature, rain, wind, volcano activity, bird life, the soft fluttering of tree leaves, the fragrant perfume of the pua (flowers) – a‘ali‘i, gingers, lehua, ferns, grasses, ohia trees, the scent of the forest and gentle brush of the misty air on one’s skin are offered to kama‘aina (local residents) and malihini (newcomers – visitors) at the higher elevations. This is nature’s perfection at its best.

By contrast, descending seaward, the landscape drastically changes. Miles and miles of black charred lava, some smooth others sharp – jagged - swirling, wrenching and twisting. Still, further the arid terrain opens to the kind warm ocean breezes, the scent - feel of salty fresh air, the hypnotic sound of the waves effortlessly rolling back and forth on the sand. Ah, the solitude of place, relaxation and peace.

Visitors are on “holiday” - vacation, the idea is to remove themselves from mechanical noises, no aircraft – helicopters, two-engine – single – engine over the Park. Enjoyment, recreation, education and discoveries are what they want.

C. Health and Safety

Air tour accidents of flights over and near HVNP:

1993 – 2003

- 5 accidents
- 18 fatalities
 - i. Weather may have been a factor;
 - ii. Directional wind changes;
 - iii. Vog; and
 - iv. Mechanical problems...

<http://starbulletin.com/2003/06/16/news/story1.html>

According to the FAA statistics:

1991 –1993 there were 46 sightseeing, and rotorcraft accidents:

- 46 injuries and
- 37 fatalities
 - i. Inappropriate and dangerous flying through volcanic fumes over HVNP;
 - ii. Flying through volcanic fumes and low-altitudes over molten lava.

<http://www.nonoise.org/library/npreport/chapter 7.htm>

National Parks Air Tour Management Program



Federal Aviation
Administration



National Park
Service

WELCOME – WE WILL BEGIN SHORTLY

October 28, 2021



National Parks Air Tour Management Program



**Federal Aviation
Administration**



**National Park
Service**

**Air Tour Management Plans
for Hawai'i Volcanoes and
Haleakalā National Parks:
Introductory Overview**



Agenda

- Opening Remarks - Hawai'i Volcanoes Superintendent Rhonda Loh
Haleakalā Superintendent Natalie Gates – 5 minutes
- Agency Participant Introductions – 5 minutes
- Meeting Purpose and Audience for today's meeting
(Cathy Nadals, FAA – 10 minutes)
- Introduction to Air Tour Management Plans
(Keith Lusk, FAA and Vicki Ward, NPS – 25 minutes)
- Section 106 Consultation - Primer
(Cathy Nadals – 10 minutes)
- Next Steps
(Cathy Nadals – 5 minutes)
- Questions - 20 minutes





Welcome

Opening and Introductions of Superintendents

Opening Remarks:

- Hawai'i Volcanoes Superintendent Rhonda Loh
- Haleakalā Superintendent Natalie Gates



Agency Participant Introductions

Presenters:

- Cathy Nadals, FAA Cultural Resources Specialist
- Keith Lusk, FAA Program Manager
- Vicki Ward, NPS Overflights Program Manager
- Derek Manning, Volpe Cultural Resources Specialist

FAA Section 106 Team Members:

- Katherine Andrus, FAA Federal Preservation Officer
- Catherine Basic, FAA Attorney

NPS Section 106 Team Members:

- Jeffrey Durbin, NPS Deputy Federal Preservation Officer
- Sara Porsia, DOI Attorney
- Dorothy FireCloud, NPS

Hawai'i Volcanoes Section 106 Team Members:

- Summer Roper Todd, Section 106 Coordinator
- Charone O'neil-Nae'ole, Native Hawaiian Community Liaison

Haleakalā Section 106 Team Members:

- Rachel Hodara Nelson, Section 106 Coordinator
- Kawai Domingo, Community Liaison



Meeting Purpose and Intended Audience

- Provide an introduction to the National Parks Air Tour Management Act (NPATMA) and current efforts to develop Air Tour Management Plans (ATMPs) for Hawai'i Volcanoes and Haleakalā National Parks for participating Native Hawaiian Organizations and other Section 106 consulting parties including individuals with a demonstrated interest in the undertaking.
- Provide an introductory overview of NPATMA and history of ATMP development in Hawai'i.
- Provide an introductory overview of Section 106 of the National Historic Preservation Act
- Provide a general review of NEPA and Section 106 and NEPA compliance activities and explain how these are being integrated.



Agency Roles

(Keith Lusk)

- The FAA and the NPS are working together to develop ATMPs
 - The FAA is acting as the lead agency overseeing compliance with NEPA and Section 106 Consultation
 - The NPS is a cooperating agency for NEPA and Section 106
- General agency roles:
 - The FAA has sole authority to control airspace over the U.S. and has the authority to preserve, protect, and enhance the environment by minimizing, mitigating, or preventing the adverse effects of overflights on public lands.
 - The NPS has responsibility for conserving the scenery, natural and historic objects, and wildlife in national parks and ensuring they remain unimpaired for the enjoyment of future generations.



NPATMA Overview

- Enacted April 5, 2000
- Requires the FAA, in cooperation with the NPS, to develop an ATMP for those parks where operators have applied to conduct commercial air tours
- Both the FAA and NPS must prepare the environmental documentation and sign the decision document for the ATMP
- The objective of any ATMP is to develop acceptable and effective measures to mitigate or prevent significant adverse impacts, if any, of commercial air tour operations upon natural and cultural resources as well as visitor experiences.



NPATMA Overview cont.

- Act applies to commercial air tours:
 - Locations within a NPS park unit
 - Within ½ mile outside of park boundary
 - 5,000 feet altitude or less above ground level (AGL)
- Parks not covered by NPATMA include:
 - Alaska parks
 - Grand Canyon National Park
 - Rocky Mountain National Park
 - Parks with fewer than 50 reported flights per year, unless this exemption is withdrawn



NPATMA Overview cont.

- Requires commercial air tour operators to apply for FAA Operating Authority in order to operate over National Park System units
- Commercial air tour operators fall into two categories:
 - Existing commercial air tour operator
 - Actively engaged in the business of providing commercial air tour operations over the park during the period 12 months prior to NPATMA
 - Those operators who provided tours prior to passage of NPATMA and have continued to fly air tours under interim operating authority
 - New entrant commercial air tour operator
 - Applies for operating authority over a park and has not been engaged in the business of providing commercial air tour operations over the park
 - May not fly air tours until granted approval by FAA and NPS



NPATMA Overview cont.

- Established Interim Operating Authority (IOA) for existing commercial air tour operations
 - Based on the number of flights conducted in the 12-month period prior to enactment of NPATMA (or average of three prior years)
 - Granted 26,664 IOA to 10 operators for Hawai'i Volcanoes
 - Granted 25,827 IOA to 6 operators for Haleakalā
 - IOA was published in the Federal Register in 2005
- Established the National Parks Overflights Advisory Group (NPOAG) to provide advice and guidance to the agencies from personnel with aviation and environmental interests.



Commercial Air Tours

- Commercial air tours, as defined in NPATMA are:
 - Conducted for compensation or hire;
 - Flown In a powered aircraft for the purpose of sightseeing over a national park, within ½ mile outside the boundary of any national park; and,
 - Flown below 5,000 feet AGL (except for takeoff/landing or as necessary for safe operation) or < 1 mile laterally from any geographic feature (unless more than ½ mile outside the park boundary)
- Does not include general aviation, commercial airline aircrafts, or military flights



Operator Reports

(Vicki Ward)

- Since 2013, each operator providing a commercial air tour over a national park under IOA authority or in accordance with an ATMP has been required to submit a report to the FAA and NPS regarding the number of operations and other required information
- The FAA and NPS use this reporting to know the number of flights conducted over the parks in recent years
- The operator reports between 2013 and 2019 are available at the NPS Air Tours website under “Air Tour Reports”:
<https://www.nps.gov/subjects/sound/airtours.htm>
- Reported annual air tours for HAVO range from 8,333 (2018) to 16,520 (2017). 2017-2019 average is 11,376
- Reported annual air tour for HALE range from 4,543 (2105) to 4,932 (2014). 2017-2019 average is 4,824



Air Tour Management Plans

- The objective of any ATMP is to develop acceptable and effective measures to mitigate or prevent the significant adverse impacts, if any, resulting from commercial air tour operations upon natural and cultural resources and visitor experiences.
- An ATMP:
 - A. May prohibit commercial air tour operations in whole or in part
 - B. May establish conditions for the conduct of air tour operations including routes, altitudes, time-of-day restrictions, restrictions for particular events, maximum number of flights, etc.
 - C. Shall apply to all commercial air tour operations within ½ mile outside the boundary of a national park
 - D. Shall include incentives for the adoption of quiet aircraft technology
 - E. Shall provide for the allocation of opportunities to conduct air tours when the ATMP limits the number of operations
 - F. Shall justify and document the need for measures taken pursuant to items (A) through (E), above, and include such justifications in the record of decision



Recent Developments: 2019 – Present

- **February 14, 2019:**
 - Public Employees for Environmental Responsibility and the Hawai'i Coalition Malama Pono filed a petition in the U.S. Court of Appeals for the D.C. Circuit to require the FAA and the NPS to complete ATMPs or VAs for seven parks (including Hawai'i Volcanoes and Haleakalā)
- **May 1, 2020:**
 - The Court granted the petition and ordered the FAA and the NPS to file a proposed plan within 120 days to bring all 23 eligible parks (based on reported air tour data from 2018) into compliance with NPATMA within two years
- **August 31, 2020:** The FAA and NPS submitted the Proposed Plan and Schedule to the Court
- **November 20, 2020:** The Court approved the [Proposed Plan and Schedule](#)
- **November 30, 2020 – September 1, 2021:** The FAA and NPS submitted four quarterly status reports to the Court



History of ATMP Development for Hawai'i Volcanoes and Haleakalā National Parks

- April 2000: NPATMA enacted
- 2003 – FAA grants IOA
- 2003 - 2006: ATMP NEPA process begins at both parks (Notices of Intent, public scoping, EAs transition to EISs)
- 2011 – public comment and meetings for preliminary alternatives for both parks
- 2012: NPATMA amended, ATMP NEPA processes at 12 parks put on hold by FAA and NPS
- 2013: Air tour reporting begins, voluntary agreement development begins at two parks in Florida



Section 106 of the National Historic Preservation

(Cathy Nadals)

- Federal agencies must consider the effect of any proposed **“undertaking”** on historic properties.
- Historic Properties include buildings, structures, objects, or sites (including landscapes, TCPs and archeological sites) listed in *or eligible for listing* in the National Register of Historic Places.
- For an undertaking in Hawai‘i, agencies must seek out the expertise of Native Hawaiian Organizations (NHOs) and other Consulting Parties (CPs) regarding an undertaking that might affect resources of religious and cultural significance within the **area of potential effects**.
- Certain individuals and organizations with a demonstrated interest in the undertaking may also participate as consulting parties due to the nature of their legal or economic relation to the undertaking or affected properties, or their concern with the undertaking's effects on historic properties.



What is an Undertaking?

Undertaking means a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license or approval.

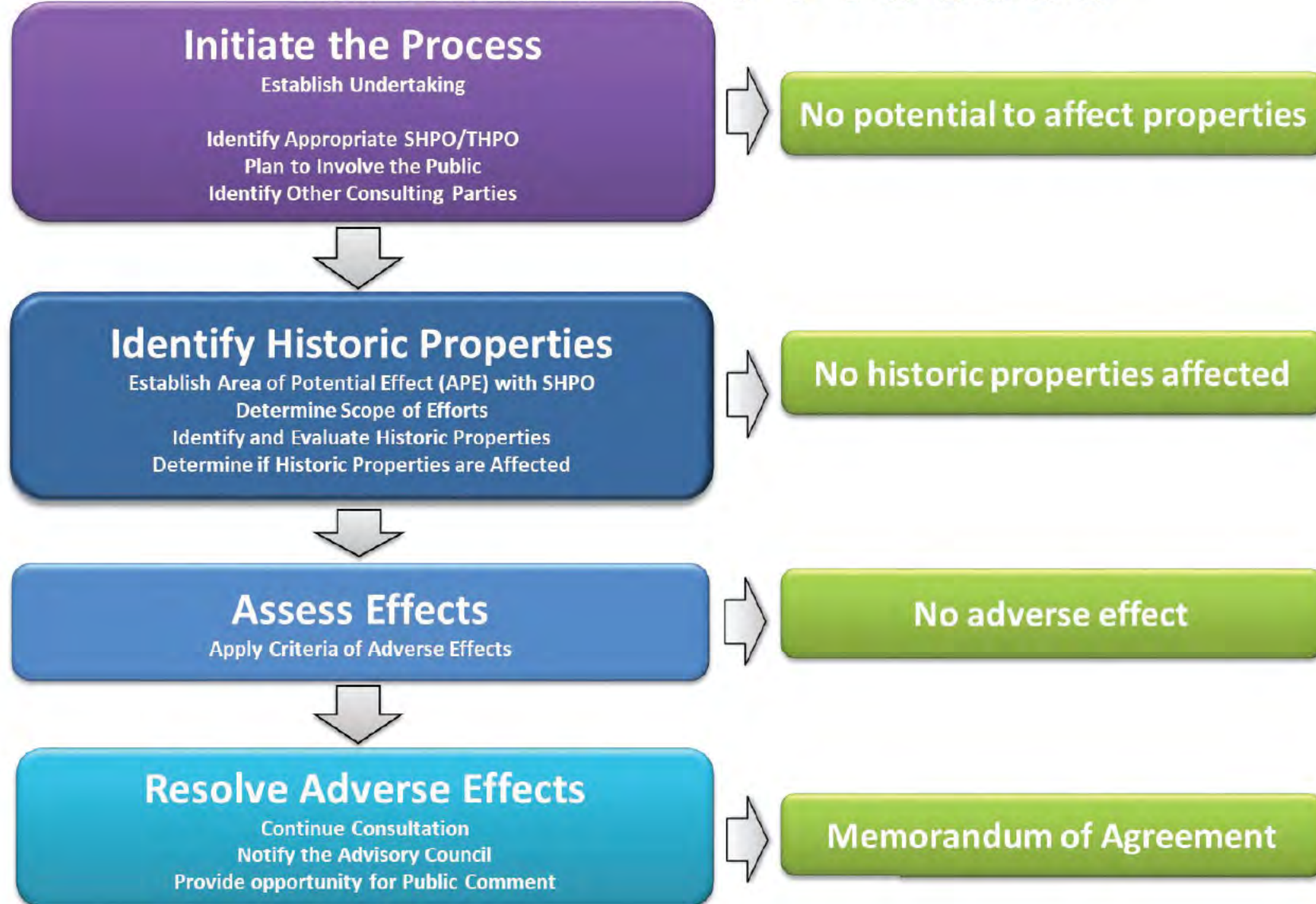


What are the APEs?

The Area of Potential Effects is the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking (i.e. visual or sound).



Section 106 Process

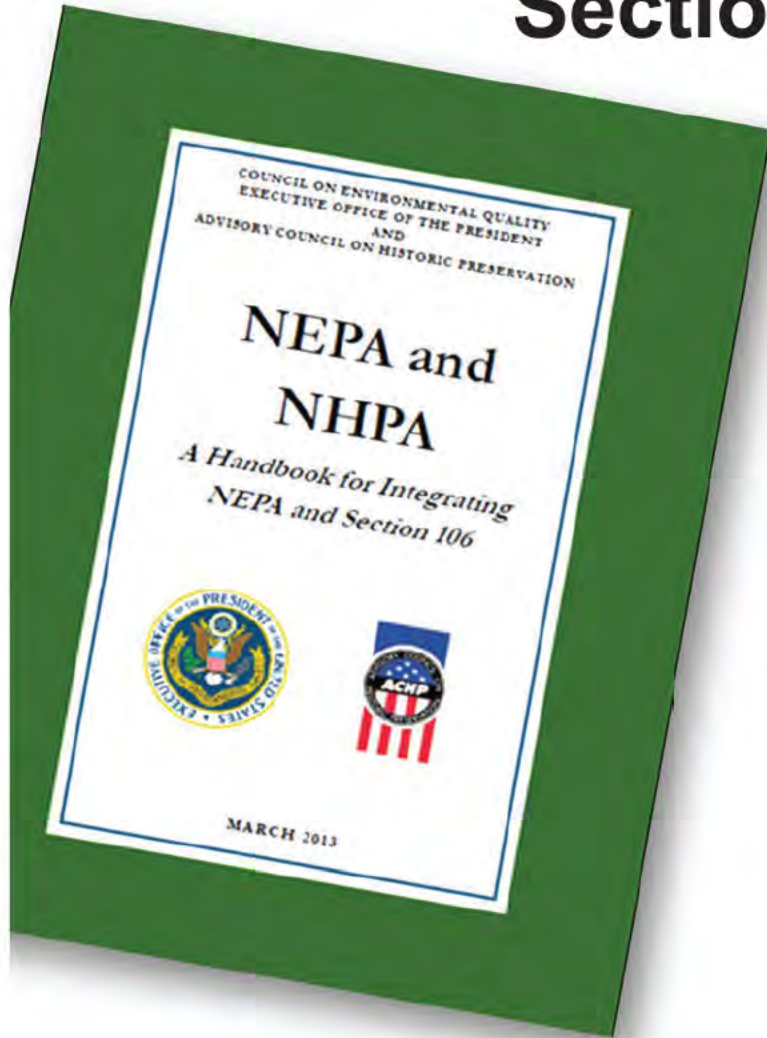


Integrating 106 and NEPA

The Section 106 regulations encourage agencies to coordinate NEPA and Section 106 compliance. NEPA regulations likewise encourage integration with other planning and environmental reviews, such as Section 106. In 2013, the Council on Environmental Quality (CEQ) and the ACHP issued joint guidance on integrating NEPA and Section 106. Coordinating efforts under NEPA and Section 106 can make both reviews more efficient. See 36 CFR § 800.8.



Section 106 and NEPA



- The FAA and the NPS are integrating Section 106 review into the NEPA process for ATMPs
- The Section 106 process must be concluded before a finding can be made under NEPA.

Different terms used in Section 106 and NEPA

Section 106

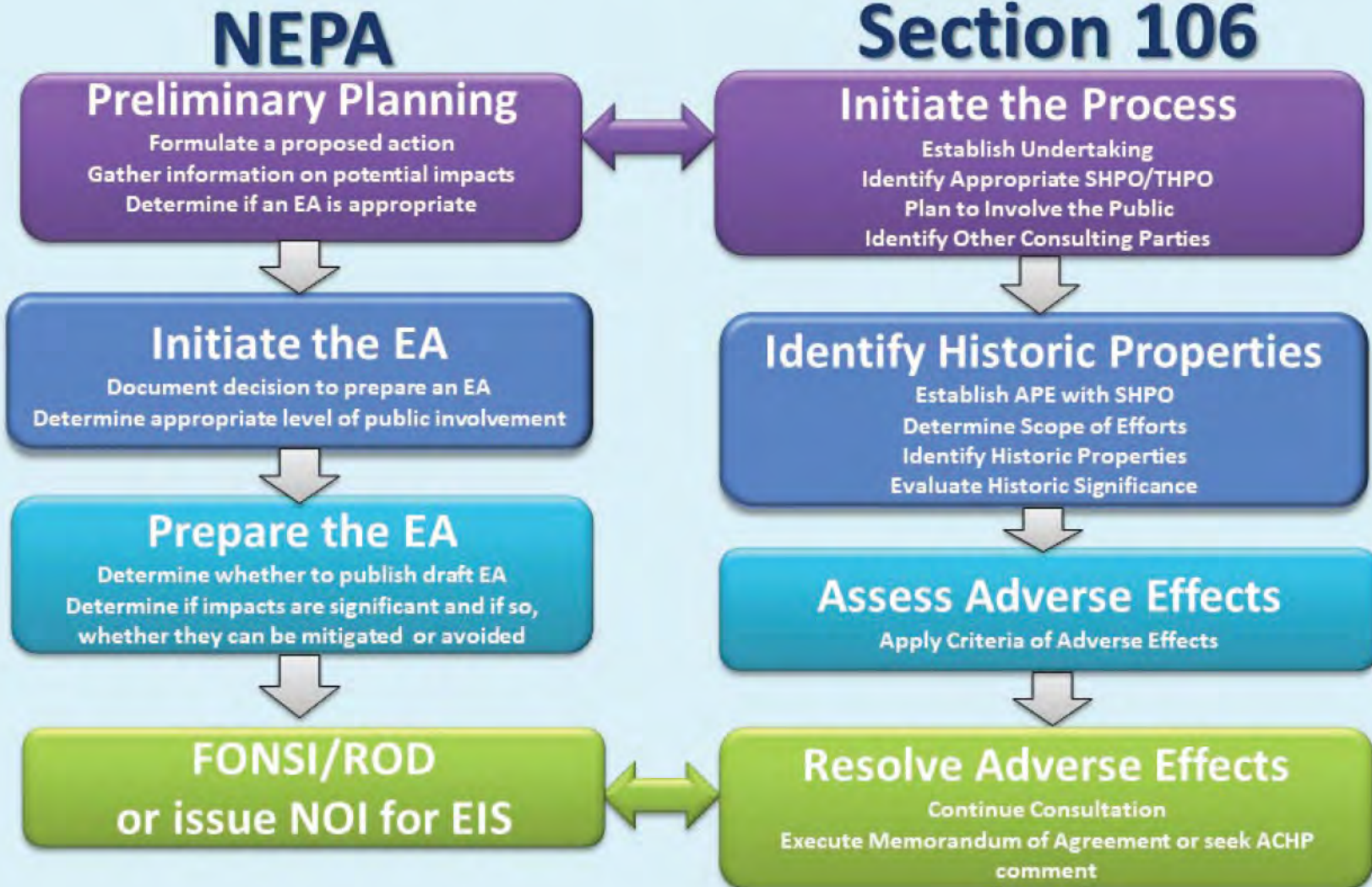
- Undertaking
- Area of Potential Effects
- Historic Properties
- Adverse Effect

NEPA

- Federal Action
- Affected Environment
- Cultural Resources
- Significant Impacts



NEPA and Section 106 Compared



NEPA Schedule Overview

(Vicki Ward)

- Public Scoping – Early 2022
- Draft ATMP/Draft EA Public Review – Spring/Summer 2022
- *Section 7 consultation ongoing*



Next Steps: Cathy Nadals

Beginning in December:

- Consult with SHPO, NHOs and other CPs to discuss the development of ATMPs and the Area of Potential Effects (APEs).
- Work with SHPO, NHOs and CPs to identify National Register-eligible or listed historic properties (including traditional cultural properties and sacred sites) within the APEs.

Early 2022

- Consult with the SHPO, NHOs, and CPs to assess effects of air tours on any identified historic properties.
- Identify ways, as needed, to modify the undertaking to avoid, minimize or mitigate any adverse effects.

Questions?

For More Information:

https://www.faa.gov/about/office_org/headquarters_offices/arc/programs/air_tour_management_plan/

<https://www.nps.gov/subjects/sound/airtours.htm>

Section 106 Points of Contact:

- Catherine Nadals, FAA: Catherine.L.Nadals@faa.gov
- Charone O'neil-Nae'ole, Hawai'i Volcanoes: [REDACTED]
[REDACTED] 808 985-6152
- Kawai Domingo,
Haleakalā: [REDACTED] 808-572-4487
- ATMPTeam@dot.gov



FAA/NPS Section 106 Webinar for HI ATMP

Thursday, October 28, 2021

Meeting Minutes

Attendees:

Kait Rimol, Cathy Nadals, Derek Manning, Nona, Rachel Hodara Nelson, Paulette Ke (Tutu), Kawai Domingo, Olena Alec, Keith Lusk, Puas, Rhonda Loh, Kalena Blakemore (Land Agent), Melissa Cady, Vicki Ward, Tweetie Lind (Kipahulu), Natalie Gates, Matt Wordeman, Brian Wallace, Denise Louie, Krystyna Bednarczyk, Danielle Foster, Paul Hosten, Charone O'Neil-Naeole, Kiersten Faulkner (Historic Hawaii), Cat Sullivan, Christina Richardson, Reid Loo, Christopher Cody, Alison Cohan, Antionette Almeida

Introduction and Overview Presentation

- Paulette led the Hawaiian elders in an opening chant.
- Rhonda provided introductory remarks on behalf of HAVO, and Natalie provided the same on behalf of HALE. Natalie noted that past cultural comments from previous ATMP processes will be considered and reviewed as part of this effort.
- Keith provided an overview of agency roles, NPATMA applicability, and IOA at each park.
- Vicki provided an overview of reported air tours at each park, objectives of an ATMP, background on the present lawsuit, and ATMP history in HI.
- Cathy provided an overview of Section 106 compliance and integrating NEPA and NHPA.
- Vicki provided an update on the ATMP schedule. Cathy provided information on next steps for Section 106 and contact information.

Discussion/Q&A

- Melissa Cady asked who would be leading the Section 7 process. Keith replied that NPS is leading the Section 7 consultation process, but that Shawna Barry is the FAA point of contact for Section 7. Keith can provide her contact info if necessary.
- Puas asked why NPATMA didn't apply to Alaska. Keith replied that commercial air tours and aviation in Alaska were specifically excluded at the request of the congressional delegation. Vicki also noted that air travel in Alaska is an essential mode of travel and is therefore managed under separate permitting processes.
- Puas asked why NPATMA didn't apply to Rocky Mountain National Park. Keith replied that the public encouraged their Colorado congressional delegation to handle this under separate legislation, as no air tours were occurring at the time.
- Puas wondered how the agencies could keep airplanes from flying over the volcano. Puas noted that there are many nature laws in HI (Kānāwai) and wondered if those could be discussed in relation to the FAA. Charone replied that they could.
- Puas requested more explanation about what was presented at this meeting so the Hawaiian elders understand what they have a right to object to. Puas noted that a lot of the content went over her head.
- Tweetie agreed that the presentation was overwhelming. The last time that she was involved with air tours was 2003 and expressed that there has not been much education provided when

the agencies say they have consulted the Hawaiian groups. When speaking about the significance of Haleakalā Crater, the agencies should remember that Haleakalā Crater is a very special place. If tours were to look out at Haleakalā Crater they see a perfect pyramid, a special place. If tour goers were interested in the crater and mountain, they would walk it. The air tours will affect animals, such as pigs and deer that are running like crazy, especially in the East Maui end, which will cause a disruption in nature.

- Tweetie also expressed that what is being said now is not more significant than what was said before during past ATMP processes. She expressed that this was too much information and is the same words the elders heard 20 years ago. Tweetie thanked others for their input and wanted to see more communication to know what's happening.
- Cathy reassured the CPs they can always contact any team members with questions and apologized for amount of information shared during the presentation.
- Kalena introduced herself from the Office of Hawaiian Affairs. Her concerns for her property are the nesting sites for shearwater in the Nu'u area, noting that she is planning to update site observations for nesting habitat. Their land also serves as habitat for Hawaiian hoary bat and tours over the forest and natural resources affect the continued existence of these species.
- Kalena also noted that last year there was a helicopter crash at the site of the school that could have endangered the children that use the school, though none were there on that day due to the pandemic.
- Kalena didn't realize that this meeting was going to be so detailed. She asked about the point of having these conversations if agencies have so much power, and asked how the park benefits from this, as she still pays the \$30 entrance fee each time she visits the park. Kalena was under the impression that she and others would be talked to as NHOs but felt that they were being presented at and didn't get to speak and share their thoughts. Kalena intends to issue a formal comment.
- Cathy reassured the CPs that the agencies want to hear their concerns. Rhonda noted that the purpose of this meeting was an introduction to Section 106 and ATMP and that there will be another meeting in December to continue to hear concerns.
- Nona recalled that there was a composite of the elders' concerns written by Puas many years ago and asked if anyone had a copy. Danielle replied that the park has the coastal assessment, all the meeting notes, the letter that the Kupuna wrote to Senator Akaka and FAA administrator during previous ATMP processes, all of which have been provided to the planning team.
- Puas expressed that what is important now is that the NHOs are aware of what's going to happen, including what the meetings entail, so they are prepared to respond to the information. The details are very overwhelming since much of it is already in place and occurring. The NHOs want to be able to put something in place before the FAA decides what should happen over their volcanoes.
- Rhonda asked if the NHO's past concerns are still present concerns. Puas replied that 2012 was a long time ago. Danielle will find copies of past NHO concerns. Natalie put in the chat that past comments will be considered regardless.
- Antionette expressed that her take on these meetings is that the info from 2012 is 9 years ago. She wanted this meeting to consist of revisiting some of the past work that was done, what

difference it made in the rules and regulations at the park, what was able to be complied with, which was not the subject of this meeting. Antionette is most interested in what information the Kupuna have given the agencies since 2000 and how helpful it has been in supporting no-fly over the park, as the Kupuna have given a lot of themselves since that time.

- Antionette commented that the Kupuna should work with their delegations to get flights banned over the park as Rocky Mountain National Park did, noting that they have valid reasons. She expressed that their concerns don't feel validated when the same situation exists in terms of flights over sacred places. She asked if there was still a no-fly zone over the crater. Danielle replied that tours can fly over the crater again. Keith added that there was a TFR at one point but has since been lifted.
- Antionette wants towers staffed 24/7 to monitor air traffic usage so all parties can have more accurate reporting on how effective air traffic management is. At the Hilo airport meeting she attended, a major question was how FAA enforces violations, and she was told that the FAA doesn't enforce anything. She asked about the park's process for enforcement, noting the need for NPS to continuously monitor the tours and more concrete data.
- Keith responded about enforcement, noting that FAA has limited resources for enforcement, and that much of it relies on firsthand accounts of what aircraft were doing as there is often not much evidence. Moving forward, the ATMP is going to require flight tracking data which will help hold air tours accountable. Puas thanked Keith for this monitoring data.
- Puas asked if the FAA really pays attention to what they have to say. Cathy reassured all of the NHOs and CPs that they are being listened to.
- Nona was disappointed to hear that flights are going over the crater again. She assumed that past meetings conveyed to the agencies that the place is sacred, but the temporary restrictions are gone. She finds it offensive that they are flying over the crater and feels upset about this process, as the Kupuna tell the agencies how they feel, and nothing happens.
- Nona's husband asked if anyone has the power to enforce this and see it through. All those on the call seem very sincere, but there is no power in the room. The agencies need to ensure that they can follow through and enforce these policies.
- Vicki replied that the agencies have been working on ATMPs for over 15 years, and that there were studies done in HI as far back as in the 1990s. She noted that staff at the park have taken a hard look at what was said in past and will use that to put together a range of alternatives. Tracking would assist the FAA in enforcement, which is a new aspect of this conversation as compared to what was possible in the past.
- Rhonda reminded everyone of the court order, noting that the onus is on the FAA and NPS to get these plans completed, again pointing out the differences now as compared to before.
- Antionette replied that the monitoring would be better if the NHOs could also monitor the flight tracking themselves. She commented that the park needs a staff person to monitor the data themselves rather than just leaving it to the FAA so they can contribute to protecting these sacred places and hold people accountable. She expressed that they can't keep passing this onto their next generations.
- Puas commented that Pohakuloa has an air restriction, in that those that come into the airspace have to announce themselves. She asked if a similar air restriction could occur at the park. Keith

confirmed this and replied that there are ways to restrict certain areas of the park with an ATMP. Puas replied that she wants a person to be able to take the requests when an aircraft wants to enter the restricted area, so they can keep track of who's coming, why they're coming, and what altitude they're coming in at. Keith replied that this ATMP is about restricting aircraft over the park, under 5,000 ft. AGL that are air tours, but that it can't restrict commercial air traffic. The ATMP can look at areas where operators can/can't fly. Cathy noted that it would be helpful to know areas that are sacred so we can avoid them.

- Puas commented that they want a restriction that tours can't fly over the volcano.
- Rhonda noted that tracking would give us a better handle on enforcement.
- Antionette asked who removed the restriction on flights over the crater, also asking, who has that kind of power over the Kupuna's sacred places? Who thought that was the right amount of time? She commented that the Kupuna have to go through an act of congress to do the same.
- Keith replied that TFRs are in place for temporary restrictions, such as presidential flights or hazardous conditions, which is within the FAA's realm of control. Since the hazardous conditions aren't as hazardous anymore, the TFR was lifted. Resource protection isn't within the FAA's realm of control, though it is still important. That's what an ATMP provides.
- Antionette expressed her dissatisfaction with that answer, commenting that they are always left out of this process. There concerns don't seem "valid" enough to impose a restriction. In the past they have asked for "no fly", not selecting places where flights could or couldn't fly. They have supplied nine years of information, but yet the government does not recognize them as the body of people that should be making the rules.
- Cathy reassured the CPs that they are committed to developing an ATMP that addresses their concerns.
- Rhonda thanked participants for their input.
- Natalie reminded the group that past comments will still be considered and commented that people submit comments in different ways.
- Cathy noted that the agencies will follow up with everyone that put questions into the chat.

Chat Transcript:

16:14:35 From Rachel Hodara Nelson to Everyone:

Kawai, Summer and Charone are all here too.

16:50:35 From Melissa Cady to Everyone:

Who is the FAA point of contact for the Section 7 consultation?

16:50:52 From rhonda loh to Everyone:

pua has her hand up

16:51:27 From Melissa Cady to Everyone:

Ok thank you

16:59:20 From Nona to Everyone:

how are the boundaries of the park specifically HVNP defined?

17:01:34 From CONeil-Naeole to Everyone:

Kalena has her hand up as well.

17:02:06 From MLane-Kamahele to Everyone:

Please consider sending out the information and PPT ahead of the calls so folks have time to review and digest a bit.

17:04:35 From Kiersten Faulkner - Historic Hawaii Foundation to Everyone:

The federal agencies (and anyone else with interest) could benefit from some of the training available for Section 106 consultation with Native Hawaiian Organizations. See <https://www.achp.gov/node/11080> and https://www.doi.gov/sites/doi.gov/files/20201022-consultation-appendices-sop-onhr_0.pdf

17:08:28 From Kalena Blakemore - Land Agent to Everyone:

Okay, I understand, thank you Rhonda

17:09:19 From Kiersten Faulkner - Historic Hawaii Foundation to Everyone:

For the next meeting, please prepare and present: identification of the historic properties affected and the contributing features and elements that are significant for historic and cultural values (including intangible components such as sound, vibration, visual) and elements of traditional cultural significance (such as practices, access, gathering, sacredness, etc.). Please also summarize comments received previously with concerns or recommendations. Superintendent Gates said the previous comments would be assessed and considered. Please summarize what that input was.

17:14:29 From Reid Loo to Everyone:

Aloha kākou, Kamehameha Schools will stay engaged through this process. We will await the draft flight path/plan. KS manages numerous endangered species adjacent to HAVO and is also engaged in a Safe Harbor Agreement with the USFWS and State DLNR. Our main concern is potential impact to these resources.

17:14:46 From NGates to Everyone:

My understanding is that the past public comments are going to be reviewed again - even if you do not confirm they are still valid.

17:15:19 From rhonda loh to Everyone:

antoinette has her hand up

17:31:32 From Kiersten Faulkner - Historic Hawaii Foundation to Kait Rimol (Volpe Center)(Direct Message):

can you stop screen share so we can have a better view of the speakers, please? Thank you.

17:31:38 From NGates to Everyone:

Nona has her hand up!

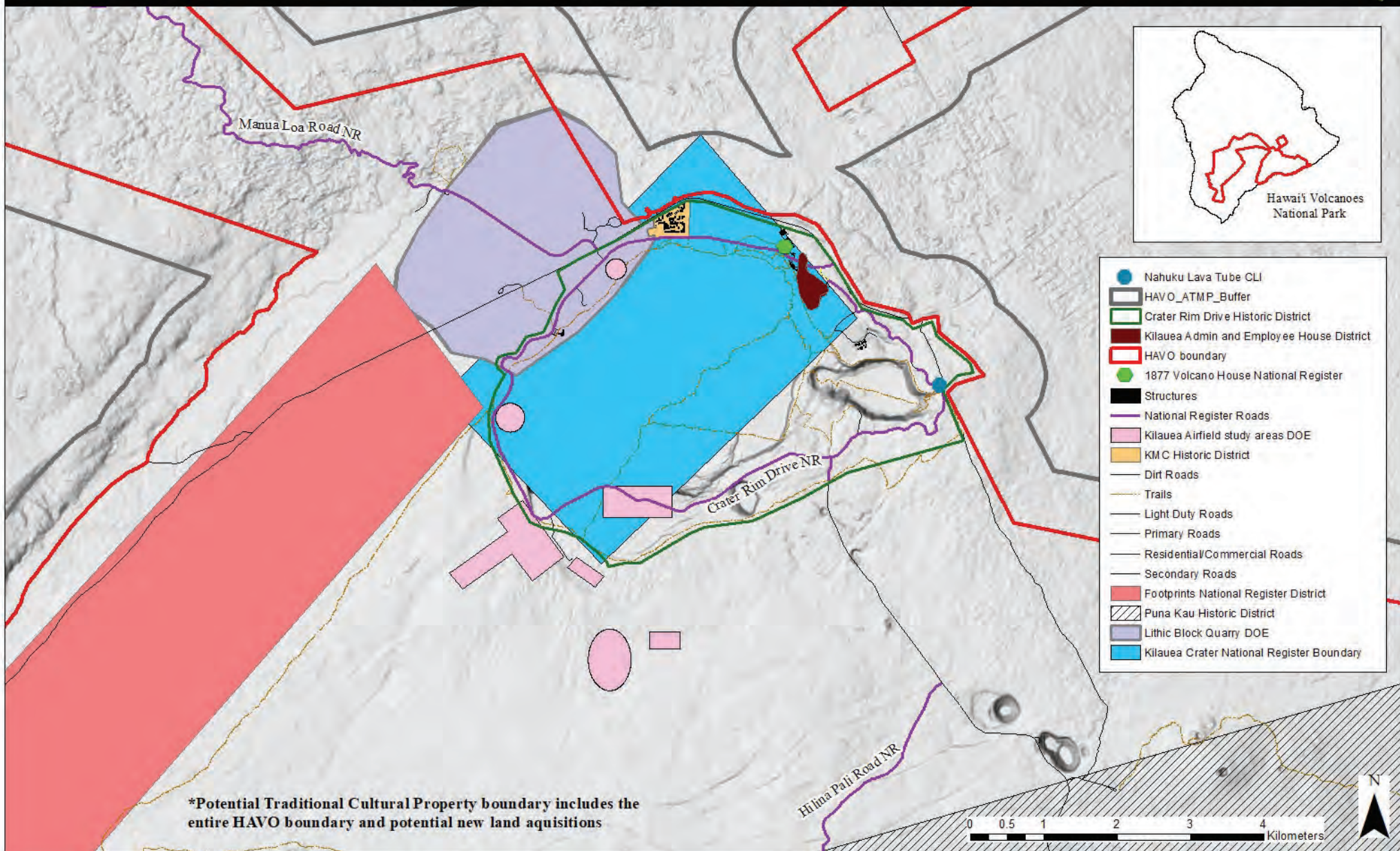
17:52:41 From Danielle Foster to Everyone:

Nona - the ATMP for Hawai'i Volcanoes will include the entire park boundary (think we are about 335,000 acres now, but if we add more land, that would also be included). Plus the 1/2 mile buffer outside the park.

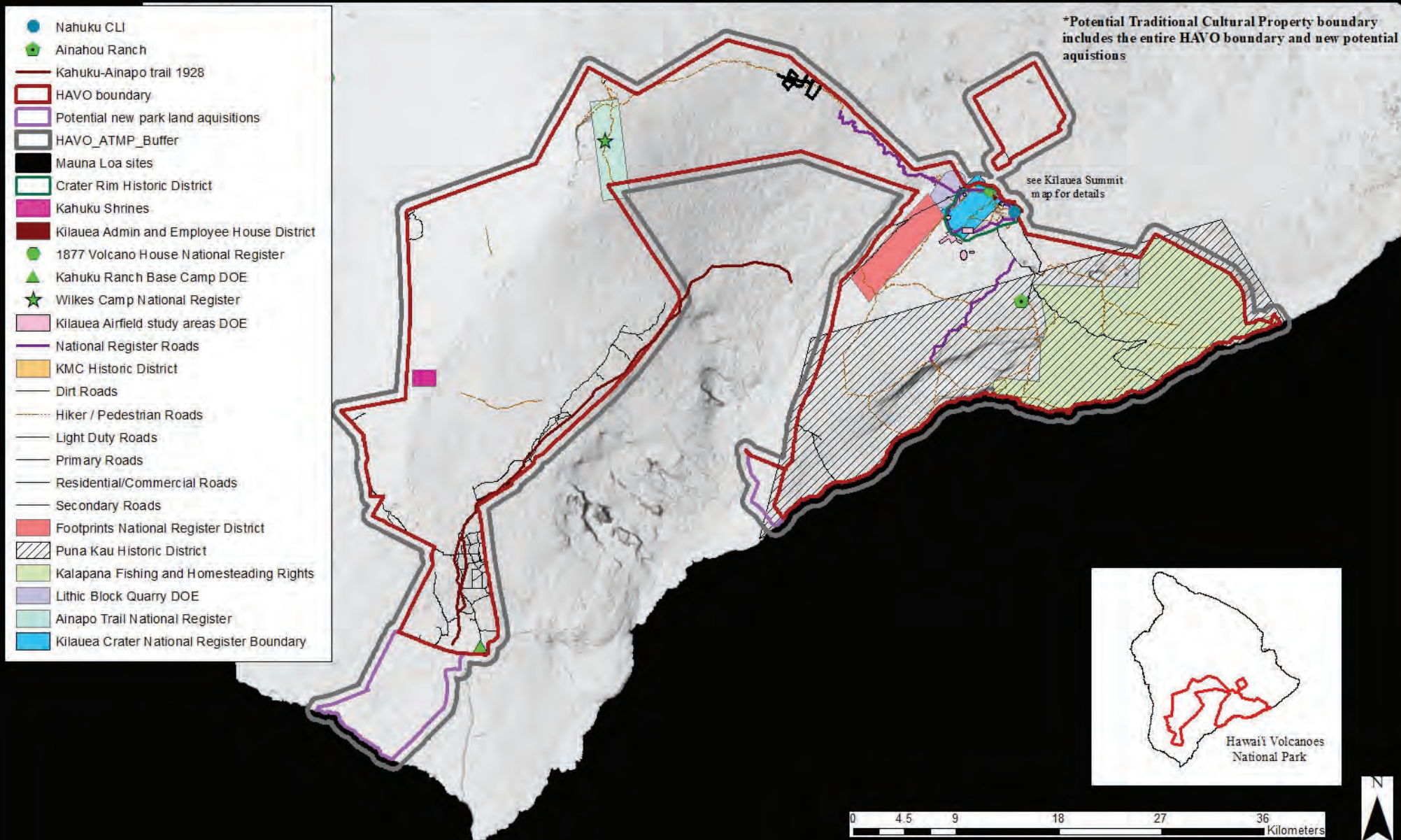
18:02:11 From Olena Alec to Everyone:

Aloha, my questions are miniscule compared to this discussion, so just adding them here for future discussion. Q to Keith/FAA re the parameters of the ATMP restrictions, regarding the quiet aircraft technology that was mentioned as being in use by some tour providers, is there a potential to create a mandate for the use of this tech (if any flight paths are allowed of course)? And more for NPS, while accessibility is a factor in the availability in these tours, to Kalena's earlier question, what is the benefit to the parks?

Hawai'i Volcanoes National Park- National Register of Historic Places boundaries and DOE's, map 2, summit detail



Hawai'i Volcanoes National Park- Historic resources, National Register of Historic Places boundaries and DOE's overview map



Hawai'i Volcanoes National Park Listening Session

For Air Tour Management
Plan Development

December 10, 2021



**Federal Aviation
Administration**



**National Park
Service**



Agenda

Charone O'Neil-Naeole

- Welcome – Charone O'Neil-Naeole
 - Oli
- Opening Remarks - Hawai'i Superintendent Rhonda Loh
- Introductions
- Summary of Past Concerns Related to Cultural Resources for Air Tour Management Planning – Summer Roper Todd
- Current Air Tour Activities – Vicki Ward
- Historic Property/Sacred Site Summary – Summer Roper Todd
- Listening Session – Charone O'Neil-Naeole



Welcome

Welcome:

- Charone O'Neil-Naeole

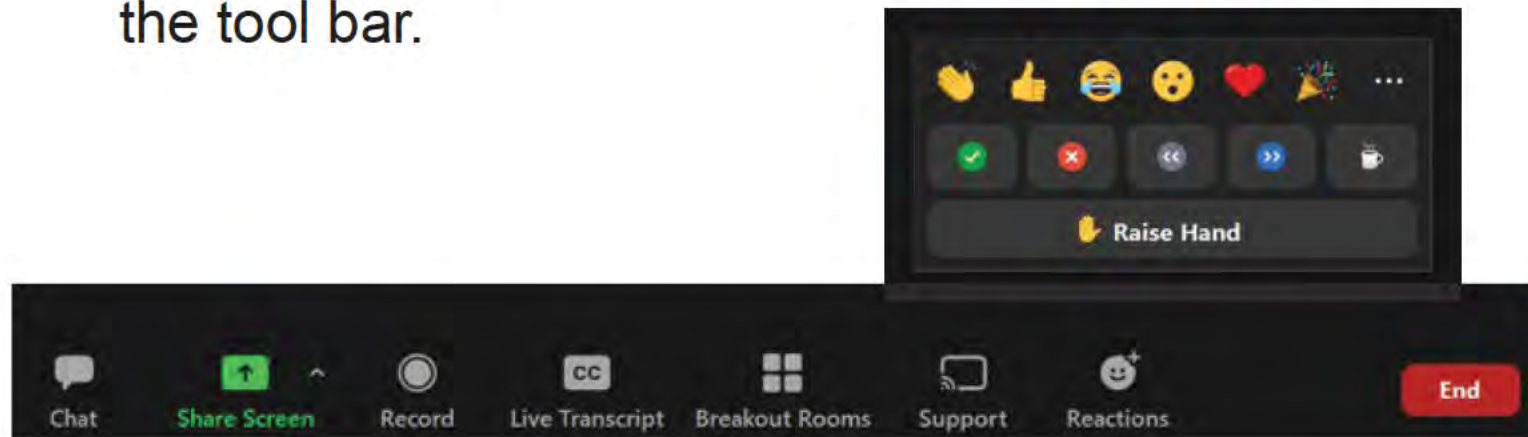
Opening Remarks:

- Hawai'i Volcanoes Superintendent Rhonda Loh



Housekeeping

- Please **mute your mic** except when talking, this improves the sound quality for all.
- If you have any questions/comments please use the "Raise Hand" icon or submit your comment in the chat box.
 - The raise your hand icon can found under "Reactions" on the tool bar.



Introductions

Hawai'i Volcanoes National Park:

- Rhonda Loh, Superintendent
- Charone O'Neil-Naeole, Community Liaison
- Summer Roper Todd, Section 106 Coordinator
- Danielle Foster, Environmental Protection Specialist

FAA

- Cathy Nadals, FAA Cultural Resources Specialist
- Keith Lusk, FAA Program Manager

NPS

- Vicki Ward, NPS Overflights Program Manager

DOT

- Derek Manning, Cultural Resources Specialist
- Kaitlyn Rimol, Environmental Protection Specialist

Consulting Parties



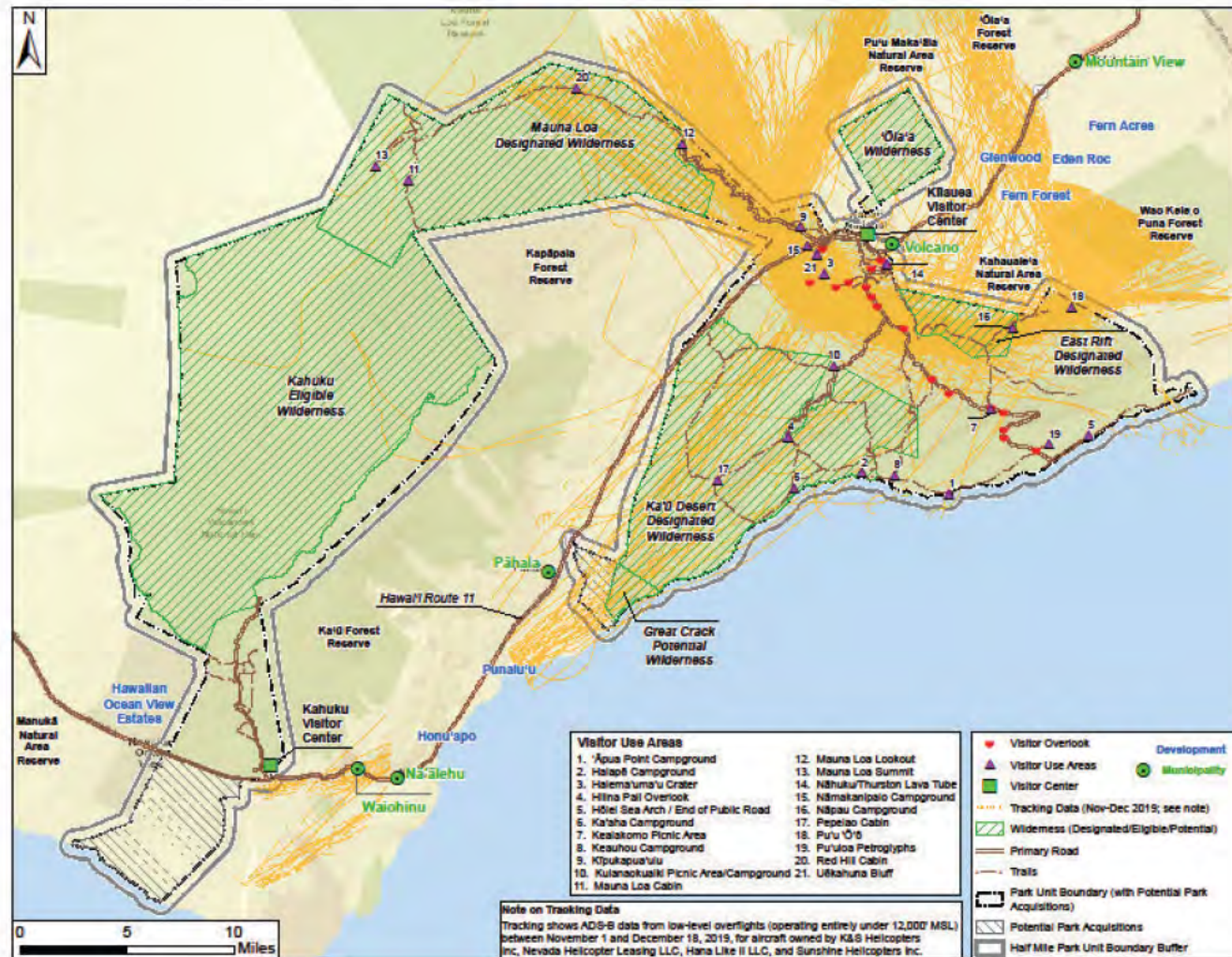
Summary of Past Concerns Related to Cultural Resources for Air Tour Management Planning

(Summer Roper Todd)

- Minutes – July 13, 2004 & March 18, 2005 ATMP Consultation Meetings
- Letter - March 26, 2005 letter to FAA
- Cultural assessment *No Pele, No Ko‘u Akua La – A Brief Articulation of the Sacred Ecology and Geology of Pelehonuamea* by Kekuhi Keali‘ika nakoleohaililani 2007-2009
- Minutes – April 18, 2011 Kupuna Meeting

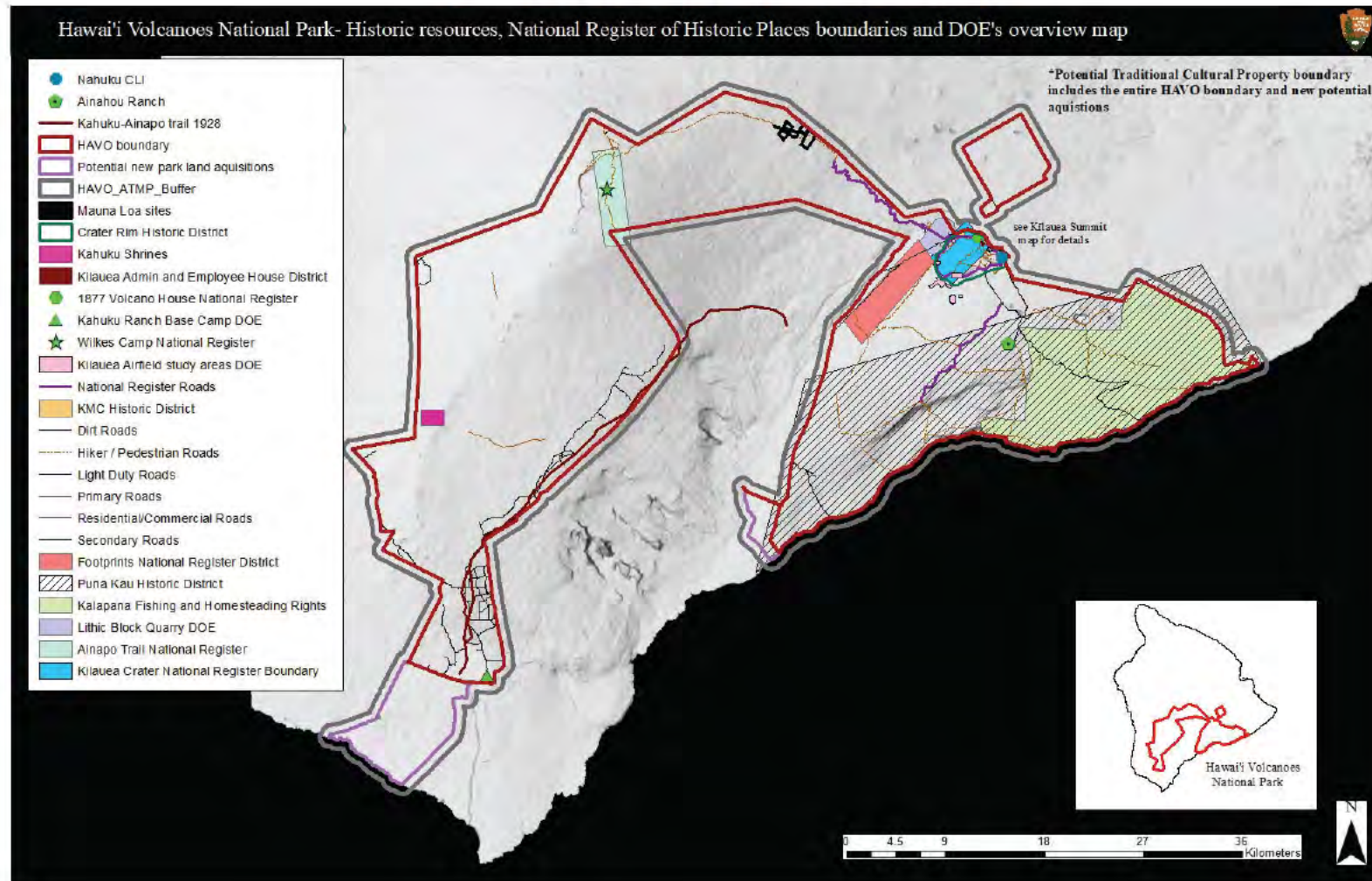


Current Air Tour Activities (Vicki Ward)

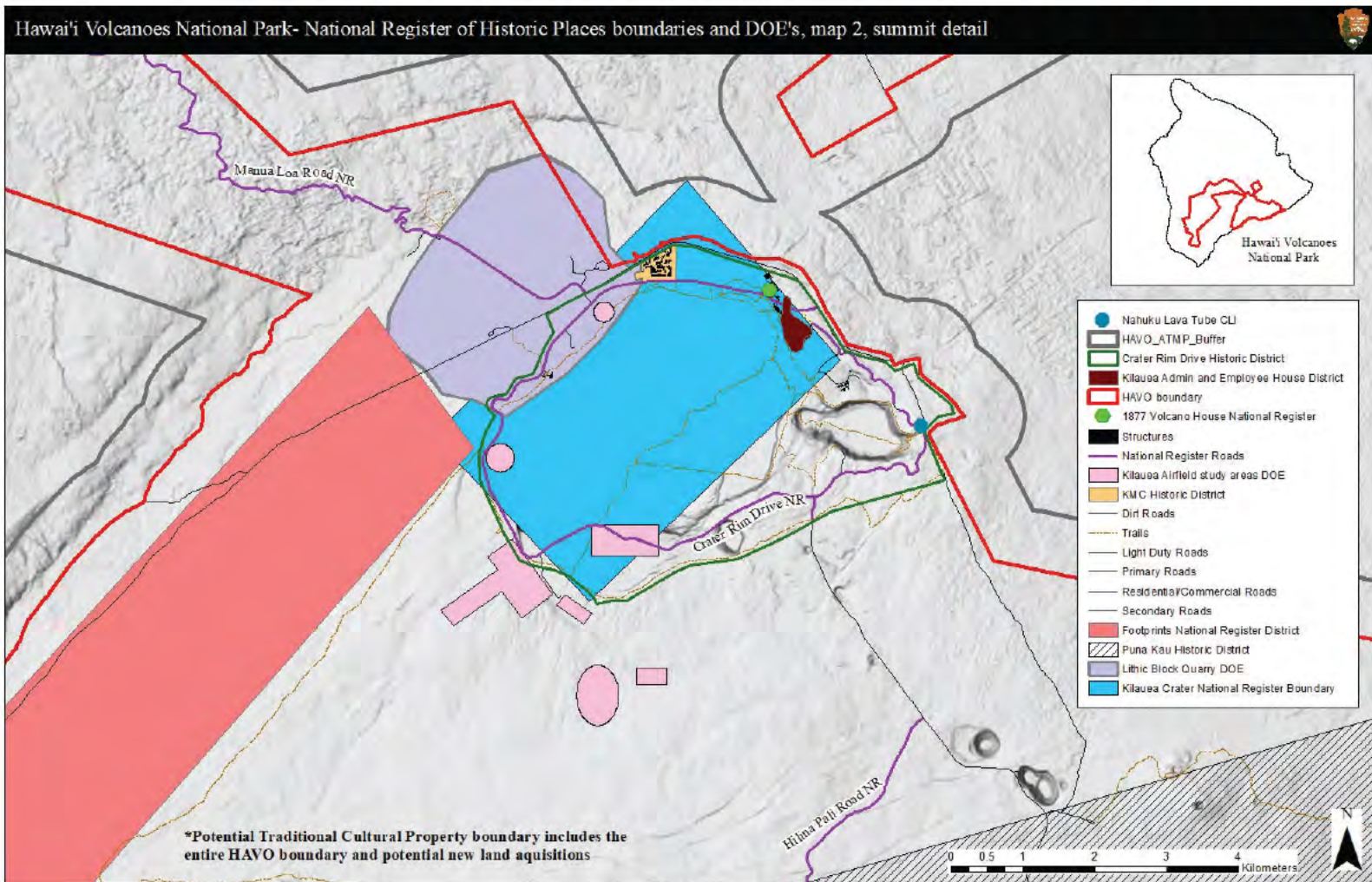


Historic Properties/Sacred Sites

(Summer Roper Todd)



Historic Properties/Sacred Sites



Listening Session

Charone O'Neil-Naeole

Next Steps:

Future Consultation Meetings

For More Information:

https://www.faa.gov/about/office_org/headquarters_offices/arc/programs/air_tour_management_plan/

<https://www.nps.gov/subjects/sound/airtours.htm>

Section 106 Points of Contact:

- Catherine Nadals, FAA: Catherine.L.Nadals@faa.gov
- Charone O'Neil-Naeole, Hawai'i Volcanoes: [REDACTED]
[REDACTED] or 808 985-6152
- ATMPTeam@dot.gov





STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
560 N. NIMITZ HWY., SUITE 200
HONOLULU, HAWAII 96817

January 24, 2022

Cathy Nadals
Cultural Resource Specialist
Federal Aviation Administration
819 Taylor St., Rm 14A02
Fort Worth, TX 76102

Re: National Historic Preservation Act, Section 106 Consultation
National Parks Air Tour Management Plan for Hawai'i Volcanoes National Park
Kapāpala and Keahou Ahupua'a, Ka'u Moku, Hawai'i Moku
Tax Map Keys: (3) 9-9-001:001; 9-8-001:001; 1-1-004:003, 020, 034; and, 1-1-001:012

Aloha e Ms. Nadals:

The Office of Hawaiian Affairs (OHA) is in receipt of your October 1, 2021, letter inviting us to participate in National Historic Preservation Act (NHPA) Section 106 consultations for the proposed Hawai'i Volcanoes National Park (HAVO) Air Tour Management Plan (ATMP). The Federal Aviation Administration (FAA) is preparing this ATMP in cooperation with the National Park Service (NPS). The ATMP will apply to commercial air tours flown at or below 5,000 feet above ground and within a half mile of the park boundaries. The letter further indicates that ATMPs are subject to environmental review, and that the FAA intends to coordinate the Section 106 and National Environmental Policy Act (NEPA) processes. As the FAA is still exploring alternative options for the ATMP, there is no set deadline for the NHPA Section 106 process and receipt of respective comments or any start date for the NEPA process.

Since issuance of your letter, two virtual consultation sessions were held online via Zoom on October 28 and December 10. OHA staff was present at both of these meetings as well as members of the Kupuna Advisory Council, Three Mountain Alliance, the Nature Conservancy, representatives from Hawai'i County Planning Department, and concerned members of the public. Notably, the Kupuna Advisory Council has participated in many consultations with NPS staff regarding cultural resources and practices within HAVO since the early 2000s. The Council has consistently advocated against commercial tours over the years due to their belief that Kīlauea is sacred and the adverse effects of low flying commercial flights on the use and serenity of the vast cultural landscape present within HAVO boundaries.

While concerns were verbally expressed at these meetings and subsequently captured by the FAA and NPS, attendees were further encouraged to provide comments in writing. As such,

OHA offers the following comments regarding the interpretation of HAVO as a traditional cultural property, the need for adequate vertical buffers, flight safety concerns, and limited flight altitude monitoring.

Interpretation of HAVO as a Traditional Cultural Property

During the NPS's presentation at the December 10th consultation meeting, NPS staff had indicated that they are looking to conduct a traditional cultural property (TCP) study for HAVO in the near future. It was further suggested that the current HAVO boundary could apply to the boundary of a TCP for the entire area. Per NPS's National Register Bulletin No. 38, a TCP is defined as,

“A property that is eligible for inclusion in the National Register of Historic Places because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community.”

In guidance provided by NPS, a TCP listing on the National Register of Historic Places can help to preserve physical properties with often-intangible aspects of a local community's cultural history.¹ It provides a mechanism to document cultural practices, beliefs, and traditions through extensive consultation and ethnographic research. Further, a TCP listing mandates a review process for any Federal, federally licensed, or federally assisted projects that might affect the property as well as requiring consultation with the affected cultural practitioners.

Over the years, the Kupuna Advisory Council has provided numerous amounts of cultural related information in the form of written testimony and a comprehensive cultural report² emphasizing the sanctity of Kīlauea and use of the many cultural resources within HAVO for cultural practices. Considering the vast amount of research and cultural related information already provided to NPS so far, a TCP study would be wholly appropriate. It is surprising to OHA that a TCP study was not already carried out for HAVO by NPS as it could serve as a proactive planning tool for any HAVO activity and would have better informed the current ATMP planning effort.

FAA representatives at the meeting acknowledged the possibility of recognizing all of HAVO as a TCP, but indicated that for NHPA Section 106 purposes, it is only necessary to determine if a historic property is eligible to be recognized as a TCP. While OHA does support HAVO being identified as eligible for a TCP designation, OHA believes that appropriately assessing any kind of adverse effect from commercial air tours cannot meaningfully occur in this case unless the TCP eligible historic property is fully understood via an appropriate TCP study.

¹ See NPS's "National Register of Historic Places – Traditional Cultural Properties: A Quick Guide for Preserving Native American Cultural Resources" - <https://www.nps.gov/history/tribes/Documents/TCP.pdf>.

² June 2009. Keali'ikanakoleohaililani, Kekuhi. No Pele, No Ko'u Akua La: A Brief Articulation of the Sacred Ecology & Geography of Pelehonuamea. Prepared for Hawai'i Volcanoes National Park, with help from Keola Wong and Laura C. Schuster.

The vast amount of evidence provided by the Kupuna Advisory Council suggests the cultural importance of and cultural resources within HAVO are not fully understood by NPS or the FAA. Mitigations developed pursuant to the NHPA Section 106 process would potentially be inaccurate and premature if the study is not completed first as part of the identification phase of the Section 106 process.

Need for Adequate Vertical Buffers

One of the key parts of the TCP documentation process is to ascertain appropriate TCP boundaries and buffer zones. At the December 10th meeting, discerning a TCP vertical buffer was suggested by OHA staff. NPS staff in turn agreed that a vertical buffer would be determined as part of the TCP documentation process to minimize any possible adverse effects to the TCP from low-flying aircraft.

Some individuals advocated for a minimum vertical buffer of 9,000 feet above the volcano, while other concerned individuals expressed a desire for an entire no fly zone over HAVO. In past consultations, a no-fly zone was a consistent request given the noise, air turbation, and intrusiveness experienced with the presence of helicopter air tours in the area. The majority of individuals at the meeting believed the noise generated from low flying helicopters are a nuisance and disruptive of the overall HAVO experience.

Additionally, OHA owns land within the nearby Wao Kele o Puna forest reserve that is home to a variety of endangered flora and fauna – ‘Akū‘akū (*Cyanea platyphylla*), ‘Ahakea (*Bobea elatior*), I‘o (*Buteo solitarius*), ‘Ō‘ū (*Psittirostra psittacea*), ‘Ōpe‘ape‘a (*Lasiurus cinereus semotus*). These species are further known to occur in the greater ahupua‘a and sensitive to low - flying aircraft noise, air turbation, and lights. While it is unknown if any of them extend into HAVO, HAVO at least recognizes the presence of four endangered species within their boundaries – the Nene (*Branata sandvicensis*), Hawaiian petrel (*Pterodroma sandwichensis*), Hawksbill turtle (*Eretmochelys imbricata*), and Mauna Loa silversword (*Argyroxiphium kauense*). Arguably, the same sensitivities to low-flying aircraft that apply to endangered species within Wao Kele o Puna may apply to endangered species within HAVO. While the Section 106 process is specific to historic properties, many of these endangered species are important from a cultural perspective and used in traditional times for various purposes. Again, these cultural resources and respective cultural functions could be better understood through a full TCP study and better protected with appropriate vertical buffers.

The concerns enumerated above could be partially mitigated through the creation of a no-fly zone or implementation of an adequate vertical buffer. OHA acknowledges that determining an appropriate vertical buffer for a TCP can be a complex process with a vast consultation effort. While OHA is supportive of minimally exploring a 9,000 foot vertical buffer, the most appropriate buffer altitude should be determined through a TCP study. Again, as suggested above, a TCP study should be carried out by NPS prior to continuance of the NHPA Section 106 process for the ATMP.

Flight Safety Related Concerns

During the December 10 meeting, safety related concerns were brought up as some reported a recent helicopter crash in a residential area near HAVO. In fact, a helicopter crash occurred as recent as March 2020 on OHA property within Wao Kele o Puna. While there were no injuries, search of the area for aircraft debris consumed OHA staff time for a few days and a tail rotor fragment was never found. Based on these prior experiences, there is a clear concern that a crash could occur again in the future that could greatly impact cultural resources and endanger cultural practitioners utilizing the area. As such, some questions were raised about pilot qualifications and the quality of aircraft maintenance being performed.

OHA notes that in 2020, the National Transportation Safety Board (NTSB) provided a "Most Wanted List of Transportation Safety Improvements" that included numerous recommendations for the FAA. Many of the recommendations were prompted by repeated helicopter air tour crashes that were occurring on the U.S. Continent and in Hawai'i. In particular, the NTSB had recommended that a cue-based training program for commercial air tour pilots in Hawai'i be developed to address hazardous aspects of local weather phenomena and in-flight decision-making.

In response, the FAA revised their Operations Specification (OPSS) B048 and Letter of Authorization (LOA) B548 to require cue-based training for air tour operations. The Hawai'i air tour industry participants must now demonstrate location-specific training products for each island where air tour operations are conducted. Further, all newly hired pilots and transferred pilots flying air tours for the first time on any island are now required to receive cue-based weather training for the pertinent island/site prior to initiating flight operations on each island. Recurrent air tour safety trainings need to be verified every 12 calendar months, with a requirement to notify the Honolulu Flight Standards District Office (FSDO) so that the FAA has an opportunity to participate.

Given the safety concerns presented by consulting parties during the NHPA Section 106 process and the real possibility of impacts to cultural resources and practitioners from air tour crashes, OHA recommends that records verifying air tour pilots cue-based training specific to Hawai'i island and up to date annual safety meetings be made available to NPS HAVO staff and the Kupuna Advisory Council upon request as part of the ATMP. This will allow for a second set of eyes to verify that the necessary trainings and annual safety meetings are completed. A viewable online portal that is easily accessible may be best to meet this purpose.

Aside from the inclusion of cue-based flight trainings for pilots, in-flight safety may be better maintained through the implementation of a "sterile cockpit rule" that restricts the pilot from also serving as a tour guide. Hawai'i Congressman Ed Case actually proposed this rule, as well as a ban on air tours over all National parks, as part of the Safe and Quiet Skies Act in January 2021. Notably, Ed Case put the legislation forward due to an uptick in fatal helicopter crashes within Hawai'i as well as repeated complaints from residents about helicopter operations in residential areas. While the fate of the measure is yet to be determined, OHA believes the sterile cockpit rule

has merit as it would allow the pilot to better focus on flying the aircraft and to limit distractions. As such, air tour operators that fly over HAVO should adopt this protocol as part of the ATMP.

From an aircraft maintenance perspective, volcanic ash, sulfur, and even high concentrations of salt greatly affect the longevity and performance of aircraft engines and other mechanical components. See FAA Order 8900.1 Volume 3, Chapter 26, Section 7, regarding volcanic ash safety related concerns for aircraft and flight crews. Notably, temporary no fly zones have been invoked over HAVO at times when explosive volcanic eruptions are anticipated and volcanic ash content is high. Coupled with the natural salt air environment of coastal Hawai'i, many eruptions that are still emanating and spewing small amounts of ash and sulfur create a less than optimal situation for aircraft engines and mechanical components. Fortunately, more frequent checks for corrosion, daily desalination rinses for aircraft turbine engines, and engine borescope inspections during every fuel nozzle change have proven to be beneficial to aircraft performance and longevity in these situations.³

While these maintenance practices are not mandated by the FAA for air tour operators in salt air environments, OHA recommends that any air tour operators flying over HAVO be required to perform daily desalination rinses, post flight checks after every flight that includes a visual corrosion inspection of the airframe, and engine borescope inspections at every fuel nozzle change. It is OHA's understanding that such a request is not overly onerous as many air carrier operators in Hawai'i already carry out these maintenance measures as a proactive safety measure to protect their flight crews and assets. Records of these maintenance actions should be made accessible to NPS HAVO staff and the Kupuna Advisory Council upon request as part of the ATMP. A viewable online portal that is easily accessible may be best to meet this purpose.

Limited Flight Altitude Monitoring

During both meetings, several individuals brought up concerns about helicopters that were flying below 1,000 feet in residential areas and within HAVO. Frustration was expressed over a failure to enforce these kind of flight violations and who to report the occurrences to. In response, the FAA indicated that they have limited resources for enforcement and that ATMPs will now require flight tracking data which will allow flight data to be recorded and utilized for enforcement in the future.

During the December 10 meeting, NPS staff also noted that not all helicopters were equipped with flight tracking data and that the current "Air Tour Activities" map is not representative of all flights that fly over HAVO. While at least 11,000 flights are occurring annually, only 625 helicopter flights provided data for the current activities map. NPS seemed to agree that if all helicopters were equipped with flight tracking data, that it would help to better monitor flights and more accurately represent collected data.

³ See aircraft engine manufacturer Pratt & Whitney's "4 Maintenance Best Practices for Preventing Salt Air Corrosion" - <https://www.pwc.ca/en/airtime-blog/articles/technical-tips/4-maintenance-best-practices-for-preventing-salt-air-corrosion>

OHA staff expressed concern that helicopter data in the area might be under reported, with adverse effects being downplayed in international informational materials published by the International Union for Conservation of Nature (IUCN) in 2020. Notably, HAVO is a recognized World Heritage Site which undergoes periodic Conservation Outlook Assessments by the IUCN. According to the IUCN data (which appears to partially rely on NPS HAVO reports), helicopter impacts were considered a "low threat" affecting the natural environment and overall HAVO visitor experience. However, the report did suggest implementing a fee system to ensure HAVO is directly benefited from impacts associated with this "low threat".

In light of the concerns presented at both meetings and acknowledgement that not all helicopters are equipped with flight tracking data, OHA believes that the ATMP should require flight tracking data for all aircraft flying at or near HAVO. As the FAA appears poised to implement this action, OHA appreciates this commitment. However, to further this action, OHA recommends additionally including protocols for concerned individuals to report possible flight violations and clear follow up actions for the FAA to follow and acquire the needed flight information for enforcement.

Further, OHA urges NPS to reach out to the IUCN to correct what seems to be false outlook conclusions about helicopters posing a "low threat" to HAVO resources and the visitor experience. During the December 10 meeting, NPS staff did seem amiable to correcting any inaccurate reporting by the IUCN. A fee system as recommended by the IUCN should indeed be worked out with air tour operators to ensure some level of benefit to HAVO; however, a retroactive benefit should additionally be explored for previous years of non-compensation as a compensatory form of mitigation under the current Section 106 effort.

Closing Remarks

Mahalo for the opportunity to comment. OHA looks forward to seeing our comments regarding the interpretation of the area as a TCP, vertical buffers, flight safety related concerns, and limited flight altitude monitoring addressed with appropriate mitigation measures. Should you have any questions, please contact OHA's Lead Compliance Specialist, Kamakana C. Ferreira at (808) 594-0227 or by email at kamakanaf@oha.org.

O wau iho no me ka oia i'o



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