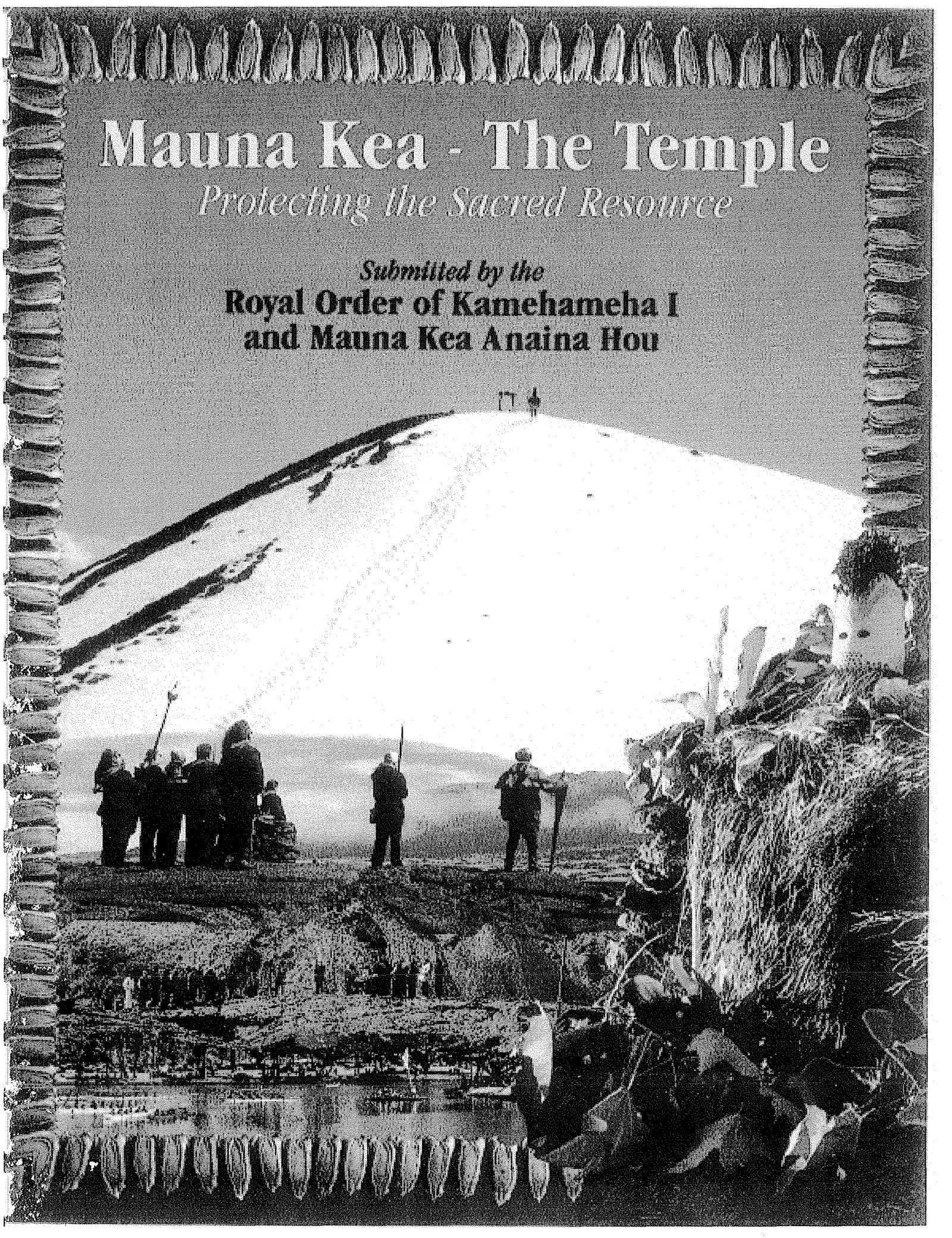
Mauna Kea - The Temple

Protecting the Sacred Resource

Submitted by the

Royal Order of Kamehameha I
and Mauna Kea Anaina Hou



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summary

The issue concerning astronomy development on Mauna Kea has been a long and emotionally charged controversy. For the past 30 years, the state and federal governments, who are charged with conserving our public resource, have failed to adequately protect the environment and cultural landscape of the summit. There has been little public support for continued development on the mountain and a greater demand for accountability. The Mauna Kea Master Plan adopted in June of 2000 fails to resolve these issues. There exists a great imbalance in the benefits derived from the use of the mountain for astronomy. There is more than enough funding for science, but little for preservation of our resources.

In this report, we outline the steps we believe are necessary to restore balance. We submit that public input into the decisions made concerning the use of Mauna Kea needs to be assured. We propose the creation of a separate authority to restore public involvement in the protection of our sacred resources. We submit that sustainable funding for this protection already exists but needs to be committed. Finally, we recommend the mitigation measures that must be taken before any further development takes place on the mountain.

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Why is Mauna Kea so sacred to the Native Hawaiian people?

The summit of Mauna Kea represents many things to the indigenous people of Hawai'i (most of which is outside the range of this report). The upper regions of Mauna Kea reside in Wao Akua, the realm of the Akua-Creator. It is also considered the Temple of the Supreme Being and is acknowledged as such in many oral and written histories throughout Polynesia, which pre-date modern science by millennia.

It is home of Na Akua (the Divine Deities), Na 'Aumakua (the Divine Ancestors), and the meeting place of Papa (Earth Mother) and Wakea (Sky Father) who are considered the progenitors of the Hawaiian People. Mauna Kea, it is said, is where the Sky and Earth separated to form the Great-Expanse-of-Space and the Heavenly Realms. Mauna Kea in every respect represents the zenith of the Native Hawaiian people's ancestral ties to Creation itself.

The Mauna Kea issue has been a long and emotionally charged controversy. This is so because, throughout the deliberations, some very basic fundamental rights have been ignored and abridged, the right to freedom of religion, the right to have a spiritual relationship with the land of our birth.

> ***"Some just look up and see a mountain...but for the Hawaiians, it's like building a McDonald's at Stonehenge."***
> *Ira S. Rohter, Associate Professor of Political Science*
> *University of Hawai'i at Manoa*

Mauna Kea the Temple

From the Native Hawaiian perspective, the issue surrounding Mauna Kea is neither political nor economic. The issue is of a **religious and spiritual nature**. It is so because the upper regions of Mauna Kea reside in Wao Akua, the realm of the Akua-Creator. **Mauna Kea is a Temple** or House of Worship. The Temple of Mauna Kea differs from other temples because it was not created by man. Akua built it for man, to bring the heavens to man. Therefore, the laws of man **do not** dictate its sanctity, the laws of Heaven do.

Although Mauna Kea is not a typical house of worship by dominant cultural standards, it is, in our cultural understanding and cosmology, a temple of the highest order. The reverence of a place is determined by the essence of the place and on Mauna Kea, when we walk upon the sacred 'aina, we do not walk in the province of our will but rather in the province of Heaven's will. For it is here that the very life breath can be seized in a moment never to return. It is only here that the life-giving waters originate. Only here do the heavens open so that man can be received, blessed, freed and transformed in the ways of Heaven.

As kahu (religious guardians) of this place, our kuleana (responsibility) to this temple is ancient. It is our duty to proclaim its sancity and work to protect it, so that its greatness and purpose can be shared with all of mankind. We must be allowed to continue our work there.

Unfortunately, the history of Hawai'i Nei has shown all too clearly that our land was seized, our culture bastardized, and our essence consumed and transformed beyond recognition. At this time in our existence, we acknowledge that, though physical things may be taken from us, our duty to Heaven cannot be abridged.

As each culture has its gifts to give mankind, so too has the native Hawaiian culture. We have asked Akua to allow us to continue on our path so we can contribute the wisdom of our ancestors to the collective knowledge of mankind. We also ask those listening to accept the responsibility to maintain reverence and respect for the laws of Wao Akua and its place in the context of Creation, for it is said that all who enter the temple of Heaven are bound by the laws of Heaven. And so it is. Aloha no.

It is in this light, Mr. Chairman, that we offer the following report.

N.B. For supplemental reading see *Appendices V and W. Appendix V* is a report evaluating the Mauna Kea Master Plan and its effects on the Hawaiian people of today, titled *Mauna Kea: Buried Epistemologies* by Emily Godinet (May 2001). *Appendix W* is a report on protocol for sacred places titled *Basic Protocol at Hawaiian Sacred Places* by Phyllis Coochie Cayan (December 1999)

Gil Coloma-Agaran
Chair, Department of Land and Natural Resources
Kalanimoku Bldg. Rm. 130
1151 Punchbowl St.
Honolulu, Hawai'i 96813

Aloha Mr. Chairman,

Attached for your review are the positions set forth by the Royal Order of Kamehameha I (ROOK I) and Mauna Kea Anaina Hou (MKAH) regarding the state of affairs and status of the sacred temple Mauna Kea. We hope to outline and reiterate our commitment to preserving, protecting and restoring Na mea o ka Lani a me ka Honua (the things of Heaven and Earth) surrounding the sacred Mauna Kea.

As is our obligation directed by Ke Akua (the Creator), Na Akua (the Divine Deities) and Na 'Aumakua (the Divine Ancestors) a me ka Po'e (the People), we present for your review our recommendations and mitigation measures to restore balance, harmony and the kuleana (duties and responsibilities) to all interested parties. We pray that you and others will hear our call to raise the standard of Aloha in all things and to brave the challenges that this issue has put before us all. We seek only fair, just and practical solutions for all parties concerned, including the astronomy community, which also holds a special place within the boundaries of the temple Mauna Kea.

Prior to this report, two other reports were submitted for consideration by Mr. Timothy Johns, the former DLNR Chair. The first report, titled *Why Mauna Kea Should be Protected and Preserved* by Kealoha Pisciotta (*Appendix A*), was intended to begin the review process, stimulate discussion and outline some of the basic problems threatening the sacred nature of Mauna Kea.

The second report, titled *Mauna Kea - Protecting the Sacred Resource,* submitted by Mauna Kea Anaina Hou (*Appendix B*), was meant to provide some concrete suggestions on how the sacred nature of Mauna Kea could be protected and preserved. It was also meant to present our suggestions on how the kuleana could be returned to all interested parties.

Some of the basic topics from the second report are:

- To outline a preliminary Cultural Preservation Plan for Mauna Kea.
- To request that the State reassess the terms and conditions of the General Lease agreement with the University of Hawai'i.
- To present proposals for funding the protection of this vast resource called Mauna Kea.

We did not receive a response to either the first or second report.

This third report is submitted on behalf of the **Royal Order of Kamehameha I, Moku O Mamalahoa, Heiau Helu 'Elua** (ROOKI) and **Mauna Kea Anaina Hou** (MKAH). Both organizations are currently consulting parties for the proposed NASA Outrigger Telescopes Project pursuant to the National Historic Preservation Act (NHPA Section 106) and the National Environmental Policy Act (NEPA).

We have forwarded this report to the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Division (SHPD) for their review. It is our hope that they will support our plan for further protection of the natural, historic, environmental and cultural resources of Mauna Kea.

We have also forwarded this report to the University of Hawai'i's new President, Dr. Evan Dobelle. It is our hope that he too will hear our call and lend support for our plan to return balance to this issue.

We thank you very much for your time. The Sacred Mountain Mauna Kea is of paramount importance to us, the Native Hawaiian peoples. We look forward to your response.

Aloha no a me Malama pono,

On behalf of the Royal Order of Kamehameha I
Moku O Mamalahoa

_____
Kuauhau Ali'i Sir Darnell Mahi

_____
Kaka'olelo Ali'i Sir Robert McKeen Jr.

_____
Ali'i Aimoku Ali'i Sir Paul K. Neves
K.G.C.K

On behalf of Mauna Kea Anaina Hou,

Kealoha Pisciotta, President

Keomailani Von Gogh, Vice President

Purpose of this report

1. **The Public Trust Doctrine is being violated.** The Public Trust Doctrine is infringed because the equal protections afforded the general public's and Native Hawaiians' collective rights to natural resources are not being fairly considered against the interests of astronomy development atop Mauna Kea.

2. We believe the **solution is to introduce public input** to the process of protecting the natural, environmental, historic and cultural resources of Mauna Kea.

3. We submit **there is existing funding** that could be committed **to insure protection of Mauna Kea** and restore balance between the interests of astronomy and those of the general public and Native Hawaiians.

4. **New developments** planned for Mauna Kea, such as the NASA Outrigger Telescopes Project, **must assess the cumulative impacts that astronomy development has had on the mountain and must be in compliance with state and federal laws.**

Statement of Problem: Violation of Public Trust

State law

The State of Hawai'i Constitution, Article XII, Section 4, states:

> **The lands granted to the State of Hawaii by Section 5(b) of the Admission Act...shall be held by the State as a public trust for native Hawaiians and the general public.**

Article XI, Section 1 states:

> **Section 1. For the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawaii's natural beauty and all natural resources, including land, water, air, minerals and energy**

sources, and shall promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the State. All public natural resources are held in trust by the State for the benefit of the people.

Prior to the public meetings in 1999, a legislative moratorium on all construction was called and a legislative audit was conducted. The *Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve* of 1998 was not complimentary to either the State or the University regarding their roles as land managers. It states:

"Over the past thirty years, the University of Hawai'i and the Department of Land and Natural Resources have managed the Mauna Kea summit and the Mauna Kea Science Reserve primarily for the development of astronomy facilities."

"We found that the University of Hawai'i's management of the Mauna Kea Science Reserve is inadequate to ensure the protection of natural resources."

"We found that the Department of Land and Natural Resources needs to improve its protection of Mauna Kea's natural resources."
(Overview - *Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve, Appendix C)*

The Department of Land and Natural Resources (DLNR) is legislatively mandated to protect the public's resources and also to honor and uphold the U.S. Constitution and federal statutes regarding religious freedom and other protections (*i.e.,* The American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act (NAGPRA), National Environmental Policy Act (NEPA), National Historic Preservation Act (NHPA), etc.).

The DLNR is also obligated to uphold state provisions that specifically protect Native Hawaiian religious, cultural, and traditional rights and traditional cultural properties (*i.e.*, Act 50, Chapter 343, PASH, 60 HRS, Title 13-300).

DLNR, in its role as manager and overseer of our mountain in the public interest, has a higher duty to support Mauna Kea because of its sacred nature. The lands and the sacred nature of Mauna Kea have been recognized by the State Historic Preservation Office through the identification and designation of the summit region as a Historic District, the summit cluster of cones as a traditional, cultural, and historic property and the Mauna Kea Natural Area Reserve as a Historic Landmark. The lands of Mauna Kea have been afforded these titles and protections because of the unique natural and cultural resources found there. The State of Hawai'i is legislatively mandated to protect all of these lands and all cultural sites on Mauna Kea. They are mandated to do so as the trustee of these lands, as they are held in trust for the beneficiaries — Native Hawaiians and the general public.

DLNR has clearly failed in its duty to protect the public lands in the public interest by handing management of Mauna Kea over to UH. The Mauna Kea Master Plan adopted in June of 2000 was formulated as a response to the auditor's report. However this response fails because it does not fully comply with state law, most notably in the following aspects.

No Burial Treatment Plan

Of the many issues that the new master plan did not address, one is of paramount importance to us and requires immediate response from the State of Hawai'i.

There is <u>no Burial Treatment Plan</u> for Mauna Kea pursuant to Chapter 6E HRS.

The State is mandated to insure that all state Chapter 6E HRS criteria are met. Title 13-300-3(b) states, "...where a burial site is Native Hawaiian and previously identified, authority to determine treatment belongs to the appropriate council." The Hawai'i Island Burial Council is the appropriate council in this case. The entire Master Plan for Mauna Kea was created and adopted by the University without any protection put in place for the "known" and "possible" burial sites contained within the Science Precinct and atop Mauna Kea in general. No burial treatment plan was created and approved to address our burial sites on Mauna Kea. Mauna Kea is the burial ground of our highest born and most sacred ancestors.

No historic preservation rules and regulations adopted

The State of Hawai'i has not adopted administrative rules to oversee historic and cultural preservation as mandated in 1976. The cultural landscape of the summit of Mauna Kea is unique throughout all of Polynesia, containing shrines, heiau, one of the largest adze quarries in the Pacific and many other cultural sites. It remains unprotected and vulnerable to damage and desecration.

> **"We recommend that DLNR...adopt rules for the Historic Preservation Program."**
> (Overview - *Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve, Appendix C)*

Little public support for the new Mauna Kea Master Plan

The public meetings held for the "new" master plan for Mauna Kea produced adamant public outcry. It should be noted that the public meetings were conducted by an appointed advisory group and were not considered to be public hearings conducted by a government agency in compliance with administrative rules.

There were at least four major positions articulated by the greater Hawaiian community in the public meetings on the new master plan.

1. **<u>No support for further development.</u>** The vast majority of the community and especially the Native Hawaiian community were not in support of the Master Plan because it allowed for the construction of more telescopes on Mauna Kea. The existence of 20 telescopes on the summit already exceeded the 13-telescope limit set in place by the 1983-85 Master Plan. Instead of addressing past infractions, the new plan overwrote previous limits on the number of telescopes permitted, allowing for further development.

2. **No support for continued control of Mauna Kea by the University of Hawai'i.** The community was not in support of allowing the University to maintain continued control of the vast public resource that is Mauna Kea because the University had a dismal record of violations of both state and federal statutes regarding environmental and cultural protections.
3. **No support for the appointment process of community representatives.** The people did not support the process by which community representatives were appointed to the Office of Mauna Kea Management, the Mauna Kea Management Board, and Kahu Ku Mauna advisory group. The University of Hawai'i administration and Board of Regents gave themselves the authority to say who could represent the interests of the people, further extinguishing public input. It should also be noted that the current OMKM, MKMB and Kahu Ku Mauna do not conduct meetings in compliance with the state Sunshine Laws. There is still no public input on any level.

4. **No support because no funding for the new Master Plan was provided.** In addition to not supporting the new master plan as it was written, the community raised further objections to the fact that no funding was guaranteed to fully implement the plan. This oversight led to further distrust in the process. It raised questions as to the seriousness of the plan. A plan cannot be implemented without funding. Although the University of Hawai'i-Hilo Chancellor offered a one-time payment of $400,000.00 from her discretionary funds to begin the process, this funding, although generous, clearly could not fund the entire costs of implementing such a plan.

The plan had no support from the community at large (see "Science, Culture Clash Over Sacred Mountain," *Los Angeles Times, Appendix D*). The public's concerns were principally ignored and band-aid solutions were implemented instead of honest and real solutions. The growing sentiment in the community is that the astronomy community has not made good faith efforts in addressing their concerns and therefore there is little support for telescopes, observatories or the international astronomy community in general.

University of Hawai'i

> **"The University focused primarily on development of Mauna Kea and tied the benefits gained to its research program."**
> *(Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve, Appendix C)*

The University of Hawai'i has been managing Mauna Kea for it own benefit, more specifically for the benefit of the Institute for Astronomy. The University of Hawai'i's Board of Regents (UH-BoR) approved the Mauna Kea Master Plan in June 2000 against the wishes of not only many hundreds of Hawaiians that presented oral and written testimony against the Master Plan over a three year period, but also against the final positions of the first and second Mauna Kea advisory committees, the Office of Hawaiian Affairs, the Department of Hawaiian Home Lands, and other major groups representing the grass-roots Hawaiian communities

Basically the people feel that the **University of Hawai'i controls** and **benefits** from everything, but **funds** and **enforces nothing**, while **the people of Hawai'i benefit nothing** and must **fund everything.** To illustrate:

1. **No fair lease rent charged for use of public resources.** The DLNR and the UH are legislatively mandated to protect the public's resources atop Mauna Kea. Yet they only charge the observatories $1.00 a year in lease rent, an amount that can hardly help fund this protection (See sub-lease agreements, *Appendix E*). Meanwhile, the University went before the state legislature to request $31 million to fund the new Master Plan. (See "U.H. seeks millions to pay bills," *Honolulu Advertiser* article, *Appendix F)*. The state legislature approved $1 million to the University of Hawai'i for the Mauna Kea Managaement Plan. **Why should the taxpayers of Hawai'i foot the bill for astronomy being conducted by 13 of the richest nations in the world? And how could a Master Plan be approved without funding already in place to implement it?**

2. **University of Hawai'i still controls the mountain.** The Master Plan authorized the creation of the Office of Mauna Kea Management (OMKM), the Mauna Kea Management Board (MKMB) and the Kahu Ku Mauna group (Native Hawaiian advisory group). All of the people selected to serve on these bodies are appointed by the UHH Chancellor and the Board of Regents, except for the DLNR representative. These bodies serve the University, not necessarily the people of Hawai'i. **This process cannot be impartial.** (See "Ho'opono Mauna Kea "- *Newsletter cover-Issue No.1 ,Fall 2000,Appendix G).*

3. **No public input.** The OMKM, the MKMB and Kahu Ku Mauna do not conduct public hearings. Therefore there is no venue for the public to have input unless invited by these University bodies. The OMKM, MKMB and Kahu Ku Mauna claim they are exempt from the sunshine law because they are only advisory to the UH President. However, the State of Hawai'i is not exempt from the sunshine law. Regardless, the alleged exemption from the sunshine law makes it very difficult for these bodies to claim to represent the people.

4. **There is no enforcement mechanism in place that is not in a conflict of interest.** There still is no state authorized enforcement mechanism in place to protect our sites and the environment. The University has recently implemented a monitoring program, hiring people that have no enforcement powers and no experience in historic, cultural or environmental protection and preservation statutes. (See "Towering Mauna Kea gets its own caretakers," *Hawai'i Tribune Herald, Appendix H).*

5. **Tourism with unencumbered access to all of our sacred sites.** The University of Hawai'i's OMKM and MKMB are planning to triple the area of the Hale Pohaku Visitor Center, increasing the number of visitors that will have unencumbered access to our sacred sites. With no proper enforcement mechanism in place, violations will inevitably result. In 1995, the BLNR approved commercial use permits that allowed for over 104,000 tourists per year, an amount already considered excessive.

New University Leadership is Encouraging

In 1999, the University of Hawai'i was cited by the Western Association of Schools and Colleges (WASC) for poor management practices of the administration. Consequently, the

University received academic accreditation for only three (3) years instead of the normal ten (10) years. This situation was brought about in part by minority reports filed regarding racism within the University system. Recently a new president of the University was named, Dr. Evan Dobelle. Because of the new leadership the WASC has extended the accreditation to 2003. We are hopeful that Dr. Dobelle will be more open to plans that support balance, good land management and the principles of the "life of the land."

Federal law

Section 106 Consultations

Under the National Historic Preservation Act (NHPA) and Chapter 6E HRS, when a major federal undertaking occurs that will affect historic properties eligible for listing on the National Register of Historic Places, Section 106 consultations are triggered. There are two concurrent federal provisions that have been triggered here on Mauna Kea: Section 106 (NHPA) and the National Environmental Policy Act (NEPA) relating to the NASA Outrigger Telescopes Project. The Section 106 Process is also triggered through NEPA in this case.

The Office of Hawaiian Affairs (OHA), Department of Hawaiian Homelands (DHHL), Hawai'i Island Burial Council (HIBC), Hui Malama I Na Kupuna O Hawai'i Nei, the Royal Order of Kamehameha I (ROOK I), Mauna Kea Anaina Hou (MKAH), Ka Lahui Hawai'i and other Native Hawaiian organizations have been recognized by NASA as consulting parties under NHPA Section 106, and have also submitted comments on the Draft Environmental Assessment for the NASA Outrigger Telescopes Project (See comments from ROOKI/MKAH, OHA and Hui Malama I Na Kupuna O Hawai'i Nei, *Appendix I-K).*

None of the Section 106 consulting parties supported either the "on" or "off" site mitigation measures submitted by NASA and, further, all parties requested that a federal Environmental Impact Statement (EIS) be conducted in order to assess the full impact of the NASA project on Mauna Kea.

No official response from NASA has been offered since March 2001.

The principle concerns raised during the Section 106 Consultations and the Draft Environmental Assessment are as follows:

- **The Section 106 process was not inclusive enough**. All consulting parties recommended the inclusion of more Native Hawaiian organizations to expedite the process. The inclusion of other Native Hawaiian organizations was also important since this Section 106 consultation would be the first ever conducted for any federal project or undertaking on Mauna Kea.

N.B. NASA and the National Science Foundation (NSF) have contributed substantial federal funds constituting federal undertakings for many projects on Mauna Kea in the past, none of which ever resulted in Section 106 consultations. For instance, the Infrared Telescope Facility (IRTF) belongs to NASA and the Smithsonian Submillimeter Array (SMA) is principally funded by the National Science Foundation.

NASA and NSF funds have been used to make improvements and alterations to the Mauna Kea Access Road and for power and communications infrastructure improvements. Foreign governmental spending as well as substantial federal

funds for development on Mauna Kea are routed through the Research Corporation of the University of Hawai'i (RCUH), thus making the University or the RCUH the administrative agent for federal funds. Yet the University of Hawai'i has not conducted either federal EIS or Section 106 consultations pursuant to the National Environmental Policy Act and the National Historic Preservation Act.

According to administrative procedures regarding Section 106, federal agencies must complete the Section 106 process "prior to the approval of the expenditure of any federal funds on the undertaking." This rule has been disregarded many times in the past, the most recent instance being the appropriation of $50 million for the NASA Outrigger Telescopes Project prior to the completion of the Section 106 process.

- **Section 106 Consultations did not include the public and were restrictive.** On February 1, 2001, NASA called a meeting and invited OHA, DHHL, ROOK I, HIBC and SHPO. NASA called this meeting a Section 106 consultation but did not allow the public to attend and restricted the number of representatives allowed to participate from the various groups, including HIBC and ROOK I. Statements of objection, oral and written, were made by ROOK I and a member of HIBC opposing the restrictions. In the end, rather than violating their own protocol, ROOK I could not participate at all. (See statement by HIBC, *Appendix L)*

- **ROOK I and MKAH filed inquiries with the Advisory Council on Historic Preservation (ACHP) requesting clarification regarding the identification of Native Hawaiian organizations pursuant to the NHPA.** Those inquiries were made in response to letters issued by Senior Senator Dan Inouye to NASA requesting recognition and inclusion of both the Office of Mauna Kea Management (OMKM) and the Kahu Ku Mauna group into the Section 106 consultation process. While we were not questioning the Senator's intent, it is our understanding that a Native Hawaiian organization as defined by the NHPA is not usually selected by a senator and not usually comprised of appointees of a senator or any other state or federal official or agency. And further, the senator's request would mean that the University would then be represented twice in the consultation process. (See letter to NASA from Senator Dan Inouye and letters from ROOKI/MKAH to OHA and ACHP, *Appendix M-N).*

Draft Environmental Assessment for NASA Outrigger Telescopes Project

- **The DEA did not ensure protection of Na Pu'u (the cinder cones) and landscape.** Na Pu'u represent the kinolau (body forms) of Na Akua (the Divine Deities) and also provide points of reference for our cultural and traditional practices of the study of the Heavens. Too many pu'u have already been leveled for development. Further alterations are unacceptable.

- **The DEA did not address the complex nature of the hydrology of Mauna Kea.** Mauna Kea is a principle aquifer for Hawai'i Island. While the sacred waters of Mauna Kea are a cultural and traditional resource of the Native

Hawaiians, we are also concerned for the health and wellbeing of all the people of Hawai'i. Contamination of our sacred waters is unacceptable.

- **ROOK I directed NASA to review their hazardous and solid waste handling and containment systems, including but not limited to the heavy use of elemental mercury.** We are very concerned about possible contamination of the sacred waters of Mauna Kea and what might happen to the waters if the proper agencies do not take appropriate action to protect this resource. (See letters to the Office of Environmental Quality Control (OEQC), Department of Health (DOH), *Appendix O and P).*

N.B. It should recognized that we did not receive acknowledgment of receipt or comments back regarding our concerns from the above agencies.

- **There was no support for the Wekiu Bug Mitigation Plan.** The Native Hawaiian organizations did not support NASA's mitigation plan because it did not address the minimum standards of protections for a species whose population has been reduced in number by 99.7% and therefore requires maximum protections.

- **All Native Hawaiian organizations have requested a federal Environmental Impact Statement (EIS) be conducted.** We consider this request a minimum requirement to protect the sacred mountain, Mauna Kea.

Under NEPA, an agency must prepare an EIS for all "major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332(2)(C). The regulations promulgated by the Council on Environment Quality establish criteria for determining when a full EIS is required: These criteria include:

- "Impacts that may be both beneficial and adverse. A significant impact may exist even if the Federal agency believes that on balance the effect will be beneficial," 40 C.F.R. § 1508.27(b)(1);

- "Unique characteristics of the geographic area such as the proximity to historic or cultural resources...or ecologically critical areas," id. § 1508.27(b)(3);

- "The degree to which the effects on the quality of the human environment are likely to be highly controversial," id. § 1508.27(b)(4);

- "The degree to which the possible effects on the human environment are highly uncertain or involve unique and unknown risks," id. § 1508.27(b)(5);

- "The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration," id. § 1508.27(b)(6);

- "Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts," id. § 1508.27(b)(7);

- "The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources," id. § 1508.27(b)(8);

- "The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973, id. § 1508.27(b)(9); and

- Whether the action threatens a violation of...requirements imposed for the protection of the environment, id. § 1508.27(b)(10).

It is clear that review of the DEA and ongoing Section 106 consultations indicates the need to address the cumulative impacts that the NASA Outrigger Telescopes Project will have on Mauna Kea in general. It is difficult to address the full impact without considering the past, present and future developments planned for Mauna Kea. Therefore, **the Mauna Kea Master Plan plays an important role in assessing cumulative impacts**.

Review of the current status of Mauna Kea under the new Master Plan

- **The State of Hawai'i has a fiduciary responsibility to protect the rights of the general public and the Native Hawaiians**.

- **The Department of Land and Natural Resources is the qualified resource manager NOT the University, NASA or the observatories**. The community is deserving of protection of its sacred mountain as well as professional management of the cultural, historic, and natural resources of Mauna Kea. The DLNR is actually the only legislatively mandated entity with the professional expertise capable of such resource management and protections. Yet it is grossly understaffed and under-funded to be able to do the job professionally, especially on the $1.00 per year lease payment the State now receives. The observatories and IfA are staffed by some of the best scientists in the world. But they are astronomers, not land managers. They are not the best resource managers for the job of protecting Mauna Kea.

- **The University of Hawai'i still controls the mountain** with no venue for public input, receives all of the benefit, and enforces and collects nothing for the people and Native Hawaiians.

- **The Office of Hawaiian Affairs (OHA) does not receive 20% revenues derived from the use of the Ceded Lands.** Mauna Kea in its entirety is Ceded Lands.

- **The Department of Hawaiian Home Lands (DHHL) does not receive any compensation for the use of their lands**. The Mauna Kea Access Road cuts through Hawaiian Home Lands. DHHL was never consulted or compensated for that action.

- **The Native Hawaiian community does not support the Master Plan nor do they support further development atop Mauna Kea.**
- **There is no Burial Treatment Plan for Mauna Kea, pursuant to state law.** There is no burial treatment plan for our highest born and most sacred ancestors.

- **No cultural preservation component in the historic preservation plan or cultural impact assessment for Mauna Kea pursuant to Act 50.** The State of Hawai'i has not adopted administrative rules to oversee historic and cultural preservation since 1976 when the legislation was enacted. There is no cultural preservation component in the historic preservation plan or cultural impact assessment pursuant to Act 50 for Mauna Kea. How will the historic and cultural aspects of Mauna Kea be protected?

- **There is no enforcement mechanism in place to protect our sites**. There is no enforcement entity created that does not have a conflict of interest (*i.e.,* not controlled by the University) or that has actual enforcement powers to do the job (*i.e.,* DOCARE enforcement powers).

- **There is no support within the community for the mitigation measures or Wekiu bug mitigation plan submitted by NASA.**

- **The NASA Section 106 consultation process is not complete and has had problems.** There has never been a Section 106 consultation with Native Hawaiians before the one currently underway with NASA on Mauna Kea in over 30 years. No consultation whatsoever. Were the University and the State responsible for requiring the international governments to be in compliance with state and federal laws regarding cultural and environmental protections, even if foreign governmental spending does not directly trigger the NHPA and the NEPA?

- **No plans or provisions outlined for lease termination in 2033.** The General lease for the summit requires that, at the termination of the leases, everything will be broken down and the sacred landscape returned to its original state. (See General Lease Agreement #S-4191, *Appendix Q*) There are no plans or provisions outlined or funding earmarked to insure that when the leases are up (2033), the telescopes will be removed and the land restored to its original state.

- **The community has stated that a federal Environmental Impact Statement (EIS) should be conducted.** No federal EIS has ever been conducted by NASA, the National Science Foundation (NSF), or any of the observatories on Mauna Kea. The IRTF and the Smithsonian Submillimeter Array (SMA), among others, are funded by NASA and NSF.

- **Benefit for use of the mountain goes to only a few.** The Institute for Astronomy (IfA), a department of the University of Hawai'i, has less than 40 students who receive the entire benefit of the use of the mountain. How do the other departments and the people in general benefit?

Compromise, we are told

The observatories and the University have asked the people of Hawai'i to compromise. We think it is rather naive for them to make such requests in light of the facts and history. It should be noted that the people have compromised for over 30 years. For over 30 years the astronomy community has enjoyed unencumbered access to and use of Mauna Kea but given virtually nothing back to the people. **Mauna Kea has become a premiere and world-class astronomy site and we consider *that* our compromise.**

The Institute for Astronomy (IfA) has stated publicly that they will *not* compromise. Mr. Robert McLaren of the IfA has stated, "If we have to give up something, that would mean we're not going to be the best in the world, then we might as well give up everything." (See *Chronicle for Higher Education, Appendix R)* The absence of trust combined with a statement such as this, makes it difficult to resolve anything.

Perhaps the astronomy community forgets that when they first asked to use the mountain, it was to build only **one observatory**. Yet, in the first four years, five observatories were built with total disregard for the concerns of the community, and over 20 were built without adhering to the 13-telescope limit allowed by the 1983-85 Master Plan. All were built without completely adhering to state and federal statutes for environmental and cultural protections.

Then, in the 11th hour of the sun-setting of the 1983-85 Master Plan, the UH sought to re-write their agreements with the State so as to secure space for more telescopes to be built. They claimed to create "solutions" to the controversy that changed little and bordered on complete insult, further alienating the environmentalists and Hawaiian community. Yet the powers that be in the astronomy community and University still claim that the people of Hawai'i **should compromise**?

Let us be clear: we do not believe that the majority of the astronomy community is the problem. We believe there are many in the ranks that support fairness and justice. It is the University and the Institute for Astronomy that we take issue with. Their power and influence should have ensured balance. But it is difficult to balance the gains they have received when weighed against the benefits to the people.

Restoring the balance

In considering possible solutions to restore balance, several facts should be kept in mind.

1. Hundreds of millions of dollars per year are involved in the operation of facilities on Mauna Kea.
2. The international observatories pay only $1.00 per year for their sub-leases.
3. The various observatories representing major international governments are required by the University IfA to contribute 10-15% of their observing time to the IfA in lieu of lease rent.

The operating costs associated with astronomical observation can range from $10,000 - $60,000 per night per telescope. This amounts to hundreds of millions of dollars per year for use by the IfA. No matter how one views the above facts, the $1.00 per year lease rent simply cannot

be reconciled. The observatories are owned and operated by governments such as the United States, France, Chile, Canada, Japan, the United Kingdom and others. They give nothing to the State of Hawai'i to assist in resource management of the mountain. We consider this unacceptable.

Instead, we submit that the 10-15% of the observing time due the IfA in lieu of rent can be the solution to restoring balance. The Institute for Astronomy receives approximately 36 nights of observing time per year from each observatory. This arrangement has meant that only a single department of the University (with minimal student enrollment) receives the bulk of the benefits from the use of public land. What if this same resource also could be used to benefit the general public?

Just one of the W.M. Keck observatory twin telescopes costs $5,000 per hour or $60,000 per night, resulting in a total worth of $21,900,000 per year. However, if we calculate observing time on both the Keck I and Keck II per year, it would be worth approximately $43,800,00.

It is clear from these figures that **time is equal to money**. If the 10-15% observing time due the UH could be sold to the international astronomy community, the resulting revenues could provide funding for the management, protection and restoration of Mauna Kea at no additional expense to the observatories.

Astronomy is a very competitive scientific discipline. There are many astronomers and universities globally who compete to acquire time on the world-class observatories of Mauna Kea. The UH/IfA allegedly does not re-sell its time allotments and claims to use them only for their own observing proposals. If this indeed is the case, it is still time not well spent.

Although time given to the UH/IfA is not cash in hand, time in this case is a resource that can be sold on the market and translated into revenue. It is clear that one department of the University serving a few students is in control of a tremendous resource. **The question remains: if the UH/IfA truly is concerned with the protection of Mauna Kea, why haven't they offered to sell some of this time to help fund the State for proper management of this precious resource?**

Solution: a Protection, Preservation and Restoration Plan for Mauna Kea

We submit to the people of Hawai'i Nei, under our obligation to the Sacred Mountain, our proposed solutions and resolutions to the above mentioned problems. We do so with the utmost respect and Aloha. It is our intention to raise the standards of Aloha for all parties concerned.

The Royal Order of Kamehameha I and Mauna Kea Anaina Hou believe we have developed a plan that has broad based support. We firmly believe that the protection, preservation and restoration of the sacred resource known as Mauna Kea can be realized if the following conditions and criteria are implemented.

Conditions

1. **No further development or expansion on Mauna Kea should be allowed.**

2. **The control of Mauna Kea must be taken out of the hands of the University of Hawai'i.**

3. **An independent Management Authority should be established to oversee the management of Mauna Kea, comprised of both the right-holders and the stake-holders of Mauna Kea (*i.e.,* Native Hawaiian practitioners, environmentalists, community representatives, DLNR, County of Hawai'i, etc.)**

4. **A fair percentage of the observing time allotted to the UH/IfA by each observatory should be resold with revenues directed to a special fund administered by the Mauna Kea Management Authority, to be used for, but not limited to, the management, protection, and restoration of Mauna Kea.**

5. **An agreement should be reached which clearly outlines how and when the telescopes shall be removed and which earmarks funding for the removal of observatory facilities and the restoration of the land, pursuant to the General Lease agreement (#S-4191) between the State and University.**

Criteria

1. Provide sustainable funding for the protection, preservation and restoration of Mauna Kea, the sacred resource.

2. Create educational opportunities for Hawai'i's children and diverse community.

3. Increase public safety through an enhanced enforcement presence.

4. Reduce overall state liability through effective, professional and qualified resource management.

5. Provide the members of the scientific-astronomy community the additional time to focus on what they are best at — astronomy.

6. Provide for the satisfaction of the various observatories at little or no additional cost.

7. Insure compliance with all federal, state and county laws.

8. Create a management entity responsible for the day-to-day protection and preservation of Mauna Kea.
9. Create a permanent venue for broad based Native Hawaiian and community involvement.

10. Insure that the religious, cultural, historic, environmental and natural resources of Mauna Kea are restored for the benefit of Hawai'i's children in perpetuity.

Implementation

In order to implement the Mauna Kea Protection, Preservation and Restoration Plan, we have divided the plan into three phases. We choose to develop it this way in order to identify not only the various problems but also the responsible agencies and funding sources. These phases are:

Phase I: Create a Mauna Kea Management Authority to be a proper venue or forum for public input.

Phase II: Find and implement sustainable funding for management and protection of Mauna Kea.

Phase III: Determine ways to mitigate the impact of astronomy on Mauna Kea including the proposed NASA Outrigger Telescopes Project.

Phase I: Create a Mauna Kea Management Authority

Problem

Currently there is no venue or forum for public input. The Office of Mauna Kea Management, the Mauna Kea Management Board and Kahu Ku Mauna are comprised of people appointed by the University administration and board of regents (except the position held by DLNR). The community does not select them. The community does not even submit names for selection. These appointed bodies do not conduct public hearings or allow the public to sit in (unless invited).

Kahu Ku Mauna maintains that they are only advisory and that is why they are exempt from the sunshine laws (HRS Chapters 91 and 92) that insure public review. The fact that they are only advisory means they are not an actual decision-making body and therefore do not represent the community that is the beneficiary of the very resources under discussion.

The University, by organizing the process in this way, has insured not only their control over the process but over the mountain as well. This is unacceptable and should never have been allowed.

The first and second Mauna Kea Advisory Committees as well as community members testifying at the public meetings requested that a public forum be established separate from the direct control of the University. This advice was not accepted.

Solution

We submit that, since Mauna Kea in its entirety is comprised of Ceded Lands and, since Native Hawaiians and the general public are the beneficiaries of the Ceded Land Trust (as was established during the admission of Hawai'i into the Union), and since the University is not a qualified resource manager and remains in a conflict of interest, the creation of a Mauna Kea Management Authority must be established to oversee and manage the lands of Mauna Kea.

We believe that a community based Management Authority would be a first step to return the kuleana (duties and responsibilities) to all interested parties. There are existing models of co-management of historic, cultural and natural areas. The Kaho'olawe Island Reserve Commission (KIRC) and the Northwestern Hawaiian Island Management Protection Area Authority (NWHI-

MPA) are two examples. We have reviewed these management plans and commissions and believe that we have put together a reasonable plan that integrates similar management elements.

The Mauna Kea Management Authority

- A Mauna Kea Management Authority (MKMA) shall be established to manage Mauna Kea.
- The MKMA shall be a decision-making body for the planning, implementing and managing of all activities on the summit and upper slopes of Mauna Kea (within the boundaries of the Science Reserve).
- The MKMA shall be a ten (10) member body comprised of both the right-holders and the stakeholders of Mauna Kea.
- In order to meet the Authority's purpose, those government agencies exercising jurisdiction over public lands and natural resources, along with the right-holders and stakeholders, shall exercise their authority to implement the decisions of the MKMA.
- The Authority shall establish a Kahu Committee made up of, but not limited to, the following representatives: Native Hawaiian religious, cultural and traditional practitioners, cultural and lineal descendants of those families with traditional ties to Mauna Kea, environmental representatives, DOCARE (Chief for Hawai'i Island), recreational users and hunters etc., to advise the MKMA on all decisions.

Membership

The membership of MKMA shall be comprised of the following governmental bodies and interested representatives, made up of right-holders and stakeholders of Mauna Kea.

1. The Chairman of the Board of Land and Natural Resources
2. The mayor of the County of Hawai'i
3. A representative from the Royal Order of Kamehameha I, selected by the Royal Order of Kamehameha I.
4. A representative of the environment, selected by the governor from a list submitted by environmental groups.
5. The president of the University of Hawai'i.
6. A representative of the Office of Hawaiian Affairs, to be recommended by the beneficiaries of Hawai'i Island and the Kahu Committee.
7. A representative of the Department of Hawaiian Home Lands, to be recommended by the Hawai'i Island beneficiaries.
8. A Kamehameha Schools trustee, to be selected based upon the recommendations of the beneficiaries from Hawai'i Island.

9. and 10. Two (2) representatives shall be selected by the governor from a list submitted by the Royal Order and the Kahu Committee, where one (1) shall specifically represent the environmental resources and one (1) shall specifically represent the cultural resources of Mauna Kea.

The chair and officers of the MKMA shall be elected by the ten members of the Authority. The elected chair of the MKMA shall not vote unless there is a tie.

Members Terms of Office

The MKMA members' terms shall be four (4) years. Following the first four years the MKMA members' terms shall be staggered by two (2) year intervals to preserve continuity of experience. Those excluded from this rotation are the chair of BLNR, the Hawai'i County mayor, and the University president since they rotate by election and appointment.

Meetings

- The MKMA shall conduct their meetings under guidelines established by "Roberts Rules of Order."
- There shall be no less than three (3) meetings annually, or as deemed necessary by the MKMA to accomplish its goals and directives.
- All meetings shall be open to the public, and shall be announced a minimum of seven (7) days prior to the meetings. Notices and agendas shall be published in the major statewide newspapers.
- Exceptions to public meetings shall be established in accordance with the state 6E provisions relating to burial site protection and for the purposes of staff issues when needed.
- The MKMA shall establish procedures for addressing public concerns through testimony (written and oral) and for grievances.

Decision Making

All decisions made by the MKMA shall be made through consensus. Decisions must be made with the full membership of MKMA present.

Vacancies

The MKMA shall establish rules for the replacement of members in the event that a member can no longer serve. Alternatives may be temporarily designated by the individual members but the alternate must be given full decision-making power.

Kahu Committee

The MKMA shall assist in the creation and implementation of the Kahu Committee.

Mauna Kea is a temple and contains many religious, traditional, cultural and historic properties and natural resources. Currently there is no recognition of the sacred nature of Mauna Kea and no recognition of na Kahu (those with kuleana and stewardship rights) and na Kahuna (priests/experts) who practice and worship atop Mauna Kea.

Most religious orders throughout the world designate initiates and have a complex system for designating them. It is no different for us. Although the initiates can be recognized by the state

or federal government, they are not created by them. **For example, when you go to the synagogue or the church, you would not expect to see a rabbi or priest that had been appointed by the government.** And so it is with our temples as well; we have our own practice of selection and initiation. There are people with familial and traditional ties to Mauna Kea that reach farther back in time than this issue. The current system does not recognize these people, nor does it allow them to participate or have input into the decision-making process. Kahu Ku Mauna is only advisory and is made up of appointees, some of whom are practitioners and some of whom are not.

N.B. We would support and encourage the current practitioners of Kahu Ku Mauna to be included on the MKMA's Kahu Committee.

Staff

The MKMA shall have a staff to administer its decisions and funding. Staff members to be hired by the MKMA shall include:

1. Executive Director
2. Executive Secretary
3. Office Administrator
4. Office Secretary
5. Mauna Kea Management Specialists
    a. Kahu Committee implementation
    b. education/interpretive programs
    c. monitoring/enforcement
6. Two (2) Special Project Coordinators to assist with environmental and cultural special projects.
6. Historic Preservation Specialist
7. Enforcement Officers

Objectives

- The MKMA shall establish long and short-term goals for the protection, preservation, and restoration of Mauna Kea. The MKMA shall include the recommendations of the Kahu Committee in their decision-making process.
- The MKMA shall work and oversee funding for the Kahu Committee on the following projects:
    a. special education projects,
    b. interpretation,
    c. historic preservation (to assist the State Historic Preservation Division in ethnography and archeological data collection, enforcement),
    d. earthquake prediction and weather monitoring program.

- The MKMA shall review existing rules and regulations including but not limited to all state and federal provisions, the University of Hawai'i's Mauna Kea Master Plan, the Natural Area Reserves (NARS) management, and astronomy development plans, etc., in order to develop the goals and directives of the MKMA.

- Existing regulations and management strategies may be, adopted, amended or repealed to meet the objectives of the MKMA.

- The MKMA may establish new regulations and modify or repeal existing regulations. No action shall be taken by the MKMA that would diminish any existing protections and provisions for the cultural, religious, traditional, historic and environmental properties and resources, but they may increase protections.

- The MKMA will make public via statewide newspapers, *Ka Wai Ola* (OHA newspaper), and other pertinent newspapers/newsletters within the community any changes to provisions, protections, rules and regulations and will determine a reasonable time for public review and comment.

- The MKMA shall confer with the Kahu Committee on all decisions or actions to be undertaken prior to and during the decision-making process.

Funding

- Funding for the MKMA shall be annually derived from the re-allocation of the observing time normally directed to the UH/IfA, with viewing time to be re-sold to the international astronomy community and revenues earmarked for a special fund for MKMA and other stated purposes (below).

- Alternatively, the observatories may negotiate a reasonable rental agreement in lieu of the time reallocation with the State, the MKMA, and Native Hawaiian consulting parties.

- The annual funding for the MKMA shall be $2 million dollars.

Phase II: Find and implement sustainable funding

Problem

As was outlined above, the University controls the mountain and the UH/IfA controls the resources derived from the observatories. Even were this not the case, there is still no excuse for the international astronomy community to be using the resources of the people of Hawai'i and only offer $1.00 per year for the protection and management of Mauna Kea, the Sacred Mountain. The nations involved in the astronomy on Mauna Kea are some of the richest in the world; they include Japan, United Kingdom, France, The Netherlands and Canada.

We believe the State of Hawai'i has the right in its role as trustee of the ceded lands to request higher and more reasonable rents and/or to negotiate with the observatories themselves to utilize some of the observing **time** allocated to the UH/IfA to help fund the management and protection of Mauna Kea.

Preferably, the observatories themselves would recognize the problems that exist and offer to do just that: pay reasonable rent or simply reallocate UH/IfA observing time to be earmarked for the preservation, protection and restoration of Mauna Kea.

We have decided to advocate for **time-sharing,** so to speak, because the alternative would cost the observatories out of pocket. We do support astronomy in general but cannot justify the money spent for it with the lack of support for the community.

N.B. We further advocate this model because we understand that the Bush Administration is advocating all national astronomy monies to be redirected to NASA, thus jeopardizing those observatories that currently receive federal funding.

To get an idea of the sums of money involved, NASA's annual budget is approximately $14 billion. Every Space Shuttle launch costs approximately $600,000,000. This figure is derived by taking the annual budget for the Space Shuttle and dividing it by the number of launches made in one year.

The Japan National Telescope (Subaru) cost approximately $300 million to construct and has an annual operating budget estimated in the range of hundreds of millions of dollars.

These numbers don't include the astronomy budgets of other governments or the National Science Foundation (NSF). Astronomy and space science are noble endeavors that we believe should be supported; however, we also believe a reasonable balance should be applied in weighing its consumption of taxpayer dollars with the needs of the environment and the health and well being of society.

By sharing the revenues of Mauna Kea with the community, the needs of the environment, culture, history, traditions and religious nature of Mauna Kea would be considered equally important to astronomy. We do not believe that it is the will of the astronomy community to place these needs on a lower level of importance than their search for greater understanding of the universe. We believe greater understanding of a threatened or endangered species is equal in standing. The potential loss of an entire species is unacceptable, and in our worldview, sets the process of creation out of balance and unraveling. Hear our call!

Solution

We believe that funding for the preservation, protection and restoration of Mauna Kea is needed. We further believe that monies exist but must be committed and set aside for these purposes. We submit that the State of Hawai'i, pursuant to its mandate as trustee of the Native Hawaiians and the Public, **must** act on our behalf. **We ask for DLNR's support for the immediate creation of the MKMA and assistance in the renegotiation of the observing time allotments with each observatory.** We believe the Native Hawaiian people and even the observatories would support such an effort. **And if this condition is not met, then the State, in conjunction with the public and the Native Hawaiian beneficiaries, should assess a fair annual lease rent for each observatory.**

Breakdown of possible revenues

For review, we present some examples of the costs per night of some of the observatories, *i.e.,* Keck I and II, Gemini North, etc.

N.B. The values used for this breakdown were calculated from amounts cited by the observatories themselves in various newspapers.)

The Keck I and II observatories cost about $60,000 per night each, therefore: **$60,000 x 2/night = $120,000,** therefore **$120,000/night x 36 nights = $4,320,000 annually.**

The Gemini North Telescope cost about $30,000 per night, therefore: **$30,000/night x 36 nights = $1,080,000 annually.**

The figures given as examples above represent time allocated to the UH/IfA annually if it were translated into money by reselling it to other interested universities and astronomical institutions. We don't have the other telescopes' operating costs but we believe they should be similar.

N.B. We would like to note that the smaller and older observatories do not cost as much to operate as the larger ones because their overhead is less. We believe a condition should placed to accommodate the smaller telescopes since their budgets are not as big. The smaller telescopes should not have to carry as big of a burden as the larger and newer ones.

We believe that the amount of money provided for by the time allotted and/or the lease rents, whichever is greater, should amount to not less than $45 million dollars annually.

Distribution of revenues

- Funding of not less than **$12 million** per year to DLNR
    1. Funding of not less than $2 million to help fund and expand the Historic Preservation Division-History and Cultural Branch and the Burial Sites Program
    2. To fund and expand the Division of Conservation and Resource Enforcement (DOCARE)
    3. Funding of not less than $2 million to help fund and expand the Division of Forestry and Wildlife (DOFAW) to manage the existing and an expanded Natural Area Reserves System (NARS).
    4. To generally fund and expand all departments responsible for management and protection of the natural resources of Hawai'i through the DLNR chairman's discretionary fund

- Funding of not less than **$2 million** per year for the Mauna Kea Management Authority (MKMA) and the programs it will oversee.

- Funding of not less than **$7.6 million** per year for the University of Hawai'i earmarked for the general education fund with not less than **25% ($1,900,000** per year) allocated for Native Hawaiian students 4-year scholarships and tuition wavers to be administered through the Center for Hawaiian Studies, **with preference given to students from Hawai'i Island.**

- Funding of not less than **$13.4 million** per year should be given to the following Hawai'i Island educational organizations and programs that serve not only native Hawaiian children, but children of all ethnicities.

1. Na Lei Na'auao - Native Hawaiian Charter School Alliance – Moku o Keawe. Funding of not less than $5.2 million per year should go to NLN-Moku o Keawe, an island-wide alliance of culturally-driven public charter schools, which integrate astronomy into their curriculum.

2. Na Kalai Wa'a Moku o Hawai'i (the canoe Makali'i's educational program). Funding of not less than $3.2 million per year should go to Na Kalai Wa'a. Hawaiian navigation and astronomy play an important role in the sacred nature of Mauna Kea. The canoe Makali'i's educational program, sponsored by Na Kalai Wa'a, serves children of all ages as well as the greater community and promotes the health, well-being and appreciation of the environment.

3. Na Pua No'eau and the Naimiloa Programs (the Gifted and Talented Educational Programs). Funding of not less than $2 million per year should go to NPN-NIL a island wide program for gifted and talented children of Hawai'i.

4. Kula Kaiapuni, the Department of Education's Hawaiian Language immersion sites on all islands. Funding of not less than $2 million dollars per years should be given to the Kula Kaiapuni programs. No more than 10% allocated shall be used for administration and 90% shall be allocated directly to the children.

5. The MKMA Scholarship Fund, a scholarship fund shall be established for the preschool children of Hawai'i. Funding of not less than $1 million dollars per year shall go to this fund and will be administered by the MKMA.

- Funding of not less than **$9 million** per year for OHA which would be 20% of the total paid to DLNR of either the observing time sold or lease rent, to be placed in a fund, with 10% earmarked for Mauna Kea education and 90% earmarked for elderly beneficiary health and housing. No more than 10% of the total allocation shall be used for administration.

- Funding of not less than **$1 million** per year for the Department of Hawaiian Home Lands for the use of DHHL land for the Mauna Kea Access Road. DHHL will need to determine this compensation in consultation with their beneficiaries.

Phase III: Determine ways to mitigate the impact of astronomy

We do not believe that any further construction on the Sacred Mountain should be allowed. We further believe that the threats made to an endangered species, the potential for contaminating our sacred and pristine waters, and the general desecration of our Sacred Mountain **cannot** be mitigated in any way, shape or form. Such things as extinction cannot be mitigated. And we have stated as much time and time again. Enough is enough.

What can NASA do?

Part of the Section 106 process is to identify those who hold certain historic properties sacred. In this process there is an effort to identify how mitigation measures remedy activities that may affect or alter historic, cultural, traditional or religious uses of these lands. In this case, the Native Hawaiians hold these lands of Mauna Kea sacred and, in that context, we are the injured party. However, since Mauna Kea is so rich in natural resources, we submit that the general public too is the injured party. As injured parties, we submit that mitigation requires the assessment of cumulative impacts.

In order to determine mitigation within the context of Section 106 consultations, we must address the cumulative impacts that astronomy has had on the mountain. And in order to do so, we must consider past, present and future astronomy development.

We believe that in order to assess the cumulative impacts on Mauna Kea, new development must be evaluated in relation to already existing development.

- NASA must assess the cumulative impacts the Outrigger Telescopes Project will have on past, present and future development

- NASA must comply with federal and state law, conduct a federal EIS and complete the Section 106 consultations on the Outrigger Telescopes Project and their other federal projects.

As we stated earlier, many federal undertakings have occurred on the mountain that should have triggered both NHPA and NEPA regulations but did not. For example, in 1997, **$50 million** was appropriated to NASA to implement phase one of the Outrigger Telescopes Project. According to federal law, Section 106 consultations or a federal Environmental Assessment should have occurred prior to that appropriation. (See letters from NASA to the Honorable Representative Patsy Mink; letters from NASA and the National Science Foundation to Kia'aina Mililani Trask, Ka Lahui Hawai'i, *Appendix S-U)*

We hope that NASA will both recognize its responsibilities and lend assistance to gain support for this plan from the astronomy community here in Hawai'i and globally.

NASA cannot assess cumulative impacts without a proper Master Plan. The Master Plan is flawed and in violation of existing statutes and has been created without adopted rules and regulations on historic preservation. Lastly, it is controlled by the University with no public input.

We **will not** support any mitigation measures put forth by NASA that continue the control of Mauna Kea by the University and/or its appointees. We **will** only accept a co-management plan such as the one outlined in this report.

We do not support any further development of our Temple Mauna Kea, especially if we cannot be assured to our satisfaction that true protection, preservation and restoration actions have been implemented. We must be able to see and measure the outcome of these activities before any further discussion can commence.

Conclusions

- A Mauna Kea Management Authority should be created to remove the University from direct control over Mauna Kea and to restore public input in management decisions.

- Ensure funding to protect the mountain and the injured parties (which include Native Hawaiians and the general public) through the reallocation of observing time on the telescopes and/or fair lease rents.

- The Mauna Kea Master Plan must be brought into compliance with all laws pertaining to historic preservation and environmental protect.

- NASA must comply with federal and state law, conduct a federal Environmental Impact Statement (EIS) and complete Section 106 consultations on the Outrigger Telescopes Project.

- The DLNR must maintain management oversite to ensure protection of Mauna Kea in the public interest and cannot transfer that responsibility to another agency.

- Until these measures are implemented, we request that DLNR not issue any permits (*i.e.,* CDUA, Conservation District Use Application permits, grading and grubbing permits, etc.).

Final statement of the Royal Order of Kamehameha I and Mauna Kea Anaina Hou

Ali'i Nui and Grandmaster of the Royal Order of Kamehameha I, Gabriel Makuakane, has decreed that

"There shall be no further development of any kind on Mauna Kea."

We do not believe life is a zero-sum game (*i.e.,* in order for there to be a winner there must be a loser). This thinking, although prevalent, is undergoing a global re-evaluation. We do not believe that, in order to search for life in the distant universe, we need to destroy life on earth. We know life exists here on earth but we are not sure that life exists elsewhere in the universe. And although we support the **academic question** that there is the possibility of life on other worlds, we can no longer ignore the fact that we are killing off entire species and destroying the environment that gives us life. **Hawai'i is now considered the *"extinction capital of the world."*** There are now less than 8,000 pure blooded Hawaiian people. With this legacy looming, we are not in a position to support any activities that would increase these extinction numbers. Everyone loses when a species becomes extinct.

If there were a clear indication that things are in fact being restored, protected, and otherwise returned to balance and righteousness, then astronomical activities could carefully be re-evaluated and perhaps allowed to advance. **But currently we cannot agree to further destruction and desecration to the land and habitat of the Wekiu bug and Mauna Kea the temple. The Ali'i have placed a kapu, or prohibition, upon the taking, using, disturbing, disrupting, and/or otherwise altering the natural balance of the species and their habitats on Mauna Kea**. Kapu placed by the Ali'i are reviewed over a time and then re-evaluated.

"Ua mau ke ea o ka 'aina i ka pono"

Kamehameha III

The above decree set forth by our Ali'i Nui Kamehameha III in 1843 and later adopted by the State of Hawai'i to become the state motto, translates as

"The life of the land is perpetuated in righteousness."

The Ali'i Nui did not utter it as a "catchy phrase" but rather as a mandate and Heavenly directive, setting the attention of the people to the Heavens for their sustenance and guidance to care for themselves and the world.

The past determines the present and the present determines the future.

The past has produced a world-class astronomy center atop Mauna Kea, accomplished without any real consideration for the beliefs of the people who hold Mauna Kea sacred. The past has produced a system and process that leaves the people out and remains in control of a single stakeholder, the University, resulting in one winner and many losers. No reasonable system or one that claims to be just would allow **one stakeholder to control all of the stakes**. This is how the system is implemented now and **it is not acceptable to the right-holders.**

We believe the plan we have outlined has broad-based support and will begin a process that

- restores control to the people and all interested parties,
- addresses the critical environmental, cultural and historic preservation issues,
- funds the responsible agencies for the protection of Mauna Kea.

Appendix A

Why Mauna Kea Should be Preserved and Protected

By Kealoha Pisciotta

A brief Mo'olelo about Mauna Kea

The significance of Mauna Kea to the Kanaka Maoli:

The summit of Mauna Kea represents many things to the indigenous peoples of Hawai'i (much of which is outside the range of this mo'olelo). The upper region of Mauna Kea resides in Wao Akua - the realm of the Akua - the Creator. It is also considered the temple of the Supreme Being and is acknowledged as such in many oral histories and written history throughout Polynesia, which pre-date modern science by millennia.

It is home of Na Akua (the Gods), Na Aumakua (the ancestors) and the meeting place of Papa (Earth Mother) and Wakea (Sky Father) whom are considered in many oral histories to be the progenitors of the Hawaiian People. Mauna Kea it is said is where the Sky and earth separated to form the great expanse of Space and the Heavenly Realms. Mauna Kea in every respect represents the zenith of the Native Hawaiian peoples ancestral ties to Creation itself.

There are many sacred places atop Mauna Kea. Which include Heiau (Temple), 'Ahu (Shrine), 'Iwi (Burial) and many other geological features which also hold sacred value to the Native Hawaiian people. Among these is Waiau (the Sacred Lake) considered among other things to be a doorway into the Po (the Heavenly Realm of the Ancestors).

Our ancestors knew these things about Mauna Kea and kept its secrets for us to love, protect and preserve. Those that ventured there in the days of old did so with care and reverence, to worship, to observe the heavens (also for Navigation) and to harvest the tools to make the large ocean voyaging canoes and further because it is the burial ground of the highest born and most sacred ancestors.

The summit of Mauna Kea is also home to some of the most rare and endangered plant and animal life on earth. In the lower regions of Mauna Kea there is the Native Hawaiian ecosystem called the Mamane/Naio forest and that is where the Mamane tree grows and in these trees is where the endangered Palila bird lives. In the upper regions of the summit area is where the endangered Dark- Rumped Petral, a high altitude bird dwells. There are numerous bugs as well, the most famous of them is the Wekiu bug. At least three of the bug species discovered in the summit region were completely new species to science, including a wolf spider.

According to the Kumulipo (Chant of Creation), before man was created all other living things were created. When the process of creation was complete the gods too were complete and walked the earth with man. It is believed that all living things no matter how big or small have purpose and make complete the whole. When a living thing ceases to exist then the process of Creation is unbalanced and begins to unravel.

Mauna Kea is also considered one of the world's premiere astronomical sites. Because of the rarified atmosphere surrounding Mauna Kea which makes for excellent seeming conditions for modern astronomy it is home to some of the world's largest and most advanced astronomical observatories.

Threats to the Sacred Mountain:

The threats to the cultural and environmental integrity of the sacred mountain called Mauna Kea are many! Outlined below is an overview of some of the most obvious and pressing of these threats:

- **The Astronomical community** Astronomical Expansion unbounded.
- No Resource Management: No Protections of the Natural and Cultural Resources.
- **No Enforcement:** No Personnel to Enforce State and Federal Statutes.
- Commercial Use and Eco-tourism: Excessive Numbers with No Controls.
- Public/Recreational Use: Unlimited Access with No Safety and Controls.

Threats Become Violations

The Astronomical Community:

The most critical and potentially threatening activities to both the cultural and environmental integrity of Mauna Kea is the expansionist mana'o (philosophy) of the astronomical community, the astronomical occupation and developmental desires of the astronomical community in general.

The search for the understanding into our cosmological origin I believe is a noble endeavor and should be supported. Although technology has changed the way we view the heavens as well as for some the cosmogenic models - or the study of mans place in creation; I believe that many of the same questions that are being asked today my ancestors asked thousands of years ago.

Modern astronomy and its place atop Mauna Kea at this juncture is not the controversy, but rather the expansionist or colonial mind-set of the empire builders within the astronomical community at large.

The obvious fear is that developmental desires of the astronomical community are unbounded. Without some kind of conscientious intervention by the responsible agencies and the community at large there will be no way to recover the environmental and cultural beauty and integrity of one of our most sacred treasures - Mauna Kea.

Background:

In 1968, the University of Hawai'i (UH) received a 65 year lease on the lands that are currently called the Mauna Kea Science Reserve (MKSR), the lease runs until the year 2033. The Science Reserve and all lands of Mauna Kea are Ceded Lands, of which by Law the Public and Native Hawaiians are beneficiaries.

In 1983, the University put together an Advisory Committee as was authorized by the Board of Regents and recommended by the former Governor George Ariyoshi to create a Master Plan and to conduct and Environmental Impact Statement (EIS) for Mauna Kea.

The resultant 1983 Mauna Kea Complex Development Plan and EIS established policies and regulations that not only governed the Development of Astronomy but was also meant to establish controls to protect the resources and interests of the Public and Native Hawaiians.

One of the regulations set by the 1983 Master Plan and EIS was a limit set on the number of telescopes allowed in the Mauna Kea Science reserve (MKSR) by the year 2000.

That number was 131

This limit allowed for 13 Telescopes, that is 11 major and 2 minor telescopes. This limit was derived based on the carrying capacity of the Mountain and in order to prevent negative impact to the cultural and environmental resources of Mauna Kea.

Today however, there are over 25 telescopes (observatories, antennas, mirrors or light collecting surfaces) that have been built or are under construction on Mauna Kea. This number does not include the "foundations" or "pads" and support structures of the "Interferometer's" or "Astronomical Arrays". *(*Please see attached picture of Interferometers in Arizona).* If were to include the interferometer's that number would be well over 50! To understand how this could have happened one must understand the basic principles of interferometry.

Interferometers and Astronomical Arrays:

In 1994, the Board of Land and Natural Resources (BLNR) approved the construction of the Smithsonian Millimeter Array (SMA) which is an interferometer currently under construction on Mauna Kea. It is a interferometer consisting of eight (8) six (6) meter antenna's and twentyfour(24) individual pads or foundations on which these antennas can be moved around on. The two farthest pads are over *1/2* of a mile apart.

This is a very large area of impact!

Interferometry by definition: is the combination of light collected from two or more antennas or elements at separate locations.

Interferometry was originally created to get around the gravitational constraints imposed upon large mirrors, which limited how big a telescope could be built. If we tried to build a mirror the same diameter as the Smithsonian Interferometer (which is *1/2* of a mile across) gravity would simple collapse it. Interferomery is also appealing because it is cheaper to build a suite of smaller antennas or to add more pads to be placed farther apart than it is to build a single large mirror. Traditionally single mirror telescopes cost roughly the cube of the mirrors diameter.

There are three basic components of Interferometer's that impact the land:

1. The number of antennas or elements,
2. the number of pads or foundations on which to place these antennas on and,
3. the space between the pads or foundations *(*N.B. which is usually referred to as the Baseline).*

The problem therefore is that despite the scientific definition it has been the position of the former State BLNR Chairman Mike Wilson and the Institute for Astronomy (IFA) that the large SMA interferometer is **only "one" telescope.** While by definition and common sense this would hardly be true and would convince most otherwise.

Because an interferometer is a device unlike any telescopes that were build in the past that constituted a MAJOR or MINOR telescope counting interferometers in the same way is ridiculous.

Unlike traditional single mirror telescopes interferometers have no physical limit as to how big they can be or can be expanded to; indeed there are interferometers that are larger than the earth itself (these employ antennas in space as well).

All that is needed to make a larger interferometer is to add more antennas, pads or foundations or by moving the existing foundations farther apart. That is also to say that at this juncture the only thing that would stop the SMA from expanding further is funding. If the SMA were to get more funding they could build more antennas, pads or expand the area of impact.

Therefore counting interferometers is a useless measure for assessing impact to the land and resources. The State and IFA's decision to count interferometers as a single facility not only violates the spirit and intent but also the letter of the 1983 Master Plan/EIS.

Under the current criteria, any of the telescopes can expand into interferometers, any size they want and ignore the impact. Indeed the KECK telescope received 50 million dollars from NASA to do optical interferometry by adding 5 smaller telescopes (called outriggers) to their existing two mirrors. These "smaller' telescope's mirrors happen to be about half the size of the worlds largest optical telescope.

Many of the telescopes have future plans to expand into some form of interferometers. In theory, if all of the telescopes on Mauna Kea were operating in the same wavelength (of light) they could connect together and all be counted as one telescope.

Resource Management and Enforcement:

The second most critical threat to the integrity of Mauna Kea is the continued lack of a comprehensive Management and Preservation Plan. Providing for the protection of the natural and cultural resources of Mauna Kea. This has been the case since development began atop Mauna Kea in 1968.

As a result of public outcry -the 1998 Hawai'i State Legislature authorized State auditor Marion Higa to conduct an Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve. **N.B. Please see the 1998 State Audit of Mauna Kea and the Mauna Kea Science Reserve and also the Seirra Club Summary of the 1998 Mauna Kea Audit.)*

The audit found that since the early seventies the Management Plans issued forth by the University of Hawai'i were not comprehensive, in that they identified only the minimum requirements for environmental, cultural and historic preservations, protections and rights. The audit further found that the Management Plans were not only lacking but were plagued with delays and in most cases were poorly implemented if at all.

In short the audit findings of both the University and DLNR management and oversight of Mauna Kea were dismal and disheartening, highlighting an unfortunate bias towards protecting the interests of the International Astronomical Community over the Public interest. This bias has lead to numerous State and Federal violations concerning environmental impact, historic preservation, and abridgements to native Hawaiian religious rights by all responsible agencies.

The State has a *fiduciary duty* to protect the interests of Public and the Native Hawaiian!

Enforcement:

Since there been no comprehensive or adequate Management Plan implemented, there has been virtually no enforcement or enforcement mechanism put in place for the protection of the environmental and cultural rights/resources atop Mauna Kea. In particular there have been no enforcement personnel free of conflict of interest (i.e. those not employed by the astronomical community). There were some attempts by the IFA to place "monitors/security" personnel, however, such monitors lack the jurisdiction to enforce State and Federal statutes.

It is usually not considered reasonable to allow an agency to police itself particularly when they haven't the jurisdiction to enforce the rules. This was clearly the case, regarding the removal of the po'o stone from the authors shrine by an IFA "monitor". *(*N.B. Please see attached letters regarding specific incident)*

Furthermore, it should be noted that enforcement personnel plays a greater role than simply to enforce the regulations but they can also serve to assist in public safety as well.

Commercial Use and Eco-Tourism:

The Commercial Use permits issued by the Board of Land Management (1995) allow for as many as 104,000 tourist per year (N.B. this number does not include the number of tourist who venture there on there own or recreational users). Furthermore, the Commercial Use Permit language was almost completely devoid of any specific or restrictive language outlining what areas (within the Science Reserve or Natural Area Reserve) could or would be accessed by these commercial vendors. This many users is excessive, particularly with no enforcement mechanism in place and operational to address any violations that could occur. Inevitably, inadvertent disturbance, destruction and desecration will occur under such conditions.

Recreational and Public Use/Safety:

The recreational users like the commercial users have no regulations; and again there is no enforcement to deal with violations. Included in recreational use is unlimited access to all

sacred sites, where inappropriate activities can occur. There is recorded history of looting,

desecration and abuse of sacred sites (i.e. spay painting on rock shelters, rearranging of shrine configurations, looting of adze and other antiquities, swimming in the lake, and skiing from the

summit, on, over and around known shrines and shrine complexes). Every winter there are skiing contests, yet there are no areas designated for this kind of activities which could have a very

negative impact on the shrine complex on the summit and other areas.

There are many hazardous areas and conditions found on Mauna Kea. Unlimited public access and no enforcement personnel increases the possibility of injuries and liability.

How do concerned citizens compel the State of Hawai'i to take a stand?

As a concerned citizen, Native Hawaiian beneficiary, and Native practitioner whose rights to worship were specifically violated by employees of the IFA (and the University and State of

Hawai'i); I could only hope that the above discussions would have some convincing arguments to compel the responsible state agencies to take action. However, I have been involved in this

struggle for nearly 8 years and have lost some hope at this stage. It is my hope however, at this juncture to simply point out some of the most glaring reasons why I believe the State should take a stand:

1. **The State has a fiduciary duty to protect the interests of the Public and the Native Hawaiian.**
2. **The 1998 State auditor's report outlined in detail where the responsible State agencies failed to protect the public's interest and instead promoted and protected Astronomical**

Development.

3. The Publics interest takes a back seat while countless violations occur and the State remains liable and must incur all of the costs.
4. The Astronomical Community is not comprised of simply poor astronomers just trying to look at the night sky. In fact the Astronomical Community is comprised of 10 of the riches Nations of the World. The US Federal funding for Mauna Kea Astronomy is made up of NASA and

National Science Foundation monies that are Line Items on the US Congressional Budge

5. Many of Observatories on Mauna Kea receive substantial federal funding, constituting federal undertakings and therefore are required to comply with the both National Historic

Preservation Act and the National Environmental Protection Act.

6. The Observatories pay $1.00 or nothing at all for their sub-leases, and in many cases did not even bother to obtain a sub-lease agreement before construction, in which case the State

barely even received their $1.00.

7. Prior to 1995, when DLNR approved the "Revised Mauna Kea Management Plan", regulation of commercial and recreational activities and protection of the cultural and environmental

resources of the Science Reserve rested with the University and the IFA. However, the

"Revised Management Plan" placed these costs and responsibilities back into the hands of the State.

8. Historic sites have been destroyed, desecrated, and looted. Employees of the University and IFA have removed and destroyed modern cultural and religious sites and yet are still

employed and the State still has not provided any enforcement.

9. The Public and Commercial users have unlimited access to all of the sacred sites and still there is no safety or enforcement mechanism and the State remains liable.

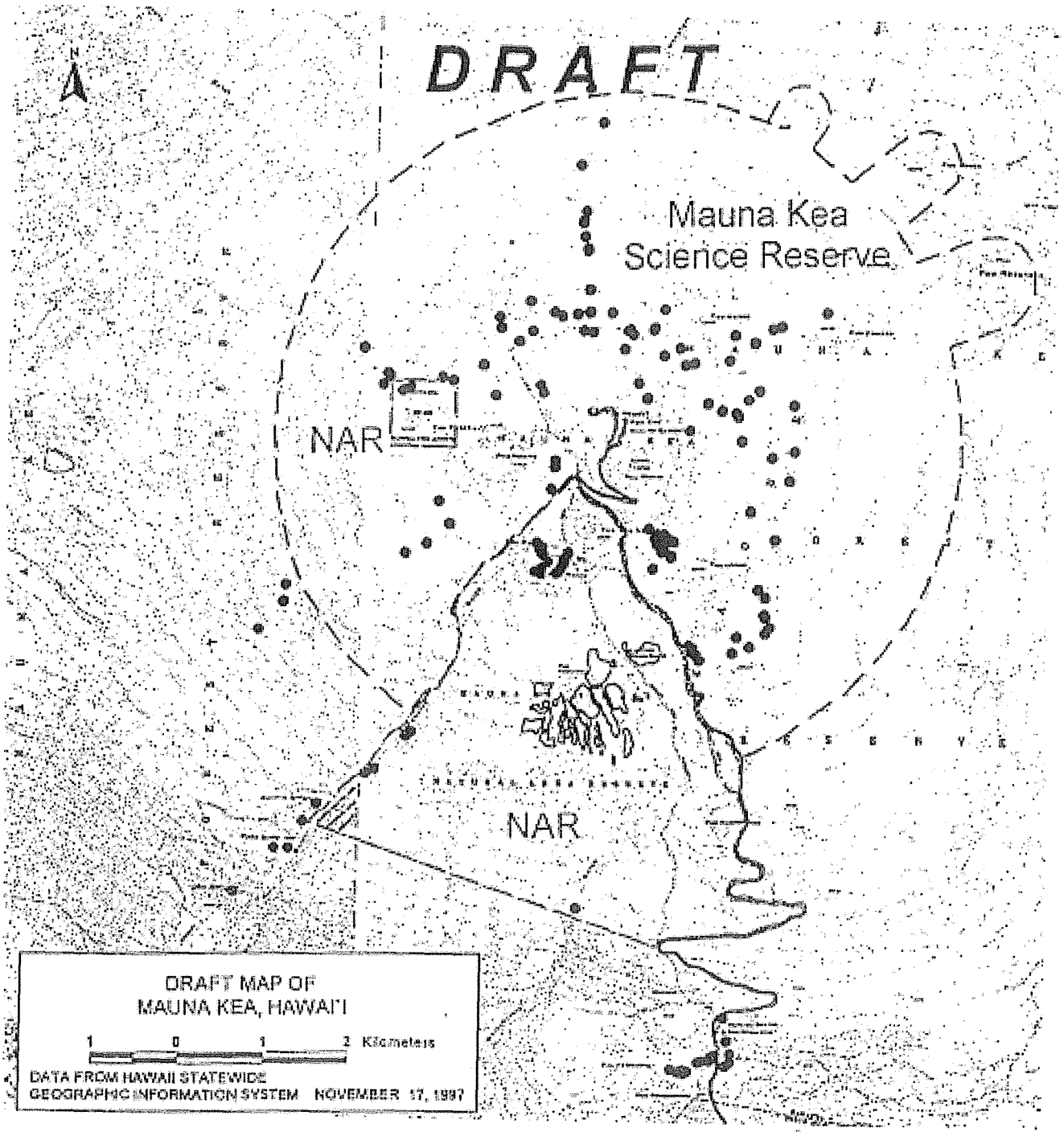
In conclusion, the Astronomical Community has been allowed to build two times the number of Telescopes without having completed the ARCHEOLOGICAL SURVEYS or

HISTORIC PRESERVATION PLANS. Yet they would continue to develop and it looks as though their plans for the future further promote development and expansion.

I think it is fair to say at this juncture, that the Astronomical Community has exceeded its quota of Telescopes for this millennium and even the next. Therefore, the question remains

should the State allow further development and expansion into the future. I must argue, that in light of the dismal record of violations and lack of good faith efforts by the University and IFA, that the State's answer must unequivocally be NO.

THE STATE MUST TAKE STAND IN BEHALF OF ALL OF THE PEOPLE OF HAWAI'I THAT ENOUGH IS ENOUGH!



*Note: Dots indicate recorded shrines (Ahu).
Survey is not yet complete

Appendix B

Mauna Kea

Protecting The Sacred Resource

By K. Kealoha Pisciotta

This copy is for the exclusive use of Mr. Timothy Johns, Chairman
Department of Land & Natural Resources
State of Hawai'i

Prepared for the Mauna Kea Anaina Hou
230 Lyman Avenue, Hilo Hawai'i 96720
(808) 934-7668
May 2000

Introduction:

Prior to this report, we fowarded another report for your review tided "Why Mauna Kea Should Be Protected and Preserved' by Kealoha Pisciotta. This report basically meant to begin the review process, stimulate discussion and to Outline some of the basic problems threatning the sacred nature of Mauna Kea. The attached report however; is meant to provide some concrete suggestions not only on how the sacred nature of Mauna Kea can be protected and preserved but also to present our consensus view of how the kuleana can be returned to all interested parties. The Mauna Kea Anaina Hou has three principle positions that on the surface may appear stringent. It is our hope however, that we will have provided enough justification and evidence to show that in fact these positions are not only fair and reasonable but evident.

Position Statements:

1. The Mauna Kea Anaina Hou exists to preserve, protect and perpetuate the religous and spiritual relationship between Akua, the Community, and the 'Aina.

2. The Mauna Kea Anaina Hou does not support further expansion of current levels of development on Mauna Kea or die destruction of the'Aina.

3. The Mauna Kea Anaina Hou believes that in light of the poor record of oversight and control of Mauna Kea by the UH/IFA; that the State of

Hawai'i has justification and an obligation to the community to reassess the terms and conditions of the lease agreement between the State of Hawai'i and the UH/IFA.

The Dangers of Special Interest MIS-Management:

1 The Mauna Kea Master Plan (s) *:

(* *The* Univeristy is currently working on =fifth draft of the Master *Plan and has* spent in excess of $800,000.00.)

The Mauna Kea Draft Master Plan(s) prepared by Group 70 International and the Mauna Kea Advisory Committee to University President Kenneth Mortimer, at first glance appear to address the critisism's raised by the State Audit as well as those raised by the public. Closer exan-driation however, will reveal the contrary.

The new Master Plan(s), after all of the nimble language, still retain at least three of the major problems that existed in the original 1983 Master Plan and later revisions. These problems are as follows:

1. **No Change in jurisdiction and Authority:** The University and the

Institute for Astronomy have been in control for 31 years and under the "new plan" they will remain in control for the next 34 years.

2. No Change in Liability: The State of Hawai'i remains liable for violations

of State and Federal laws incurred by the UH/IFA, and for Public Health and Safety:

3. **No Change in Funding:** The UH/IFA has presented no viable solution

for the funding and implementation of this new management plan.

The Jurisdiction and Authority of the UH/1EFA:

The original lease (S-4191) issued in 1968, allowed for one observatory and support structures to be built. Within the first four years of receiving their lease, the IFA built a total of five observatories instead of what was authorized within the lease agreement. The use of semantics to justify development and circumvent the letter or spirit of agreements reached, has a long history with astronomy in Hawai'i. In 1983, the Draft Master Plan and EIS alloed for thirteen observatories inclusive of the six that were previously built. In 1999, a total of sixty observatories, telescopes, antennas, foundations and support structures exist in direct violation of the original lease and the 1983 Master Plan and EIS.

Under the jurisdiction of the UH/IFA, three times the number of observatories and structures have been built, most without the proper permits and without having to adhere to either State or Federal statutes regarding historic, cultural and environmental protections.

The 1983 Master Plan and EIS required that the Archaeological Surveys be completed and a Historic Preservation Plan be implemented before further development would be allowed. To date, however, the archeological surveys have not been completed (i.e., only *reconnaisance level surveys are complete),* the State Historic Preservation Division is currently working on the completion of the Preservation Plan. There has been no consultation with Native Hawaiian organizations and families pursuant to Section 106 of the National Historic Preservation Act and no compliance with Chapter 6E of the State Historic Preservation Act pertaining to the protection of burials. No consultation with the Hawai'i Island Burial Council has taken place. This is needed in order to develop a long range burial protection plan for the burial complexes on Mauna Kea. And last but not least, the IFA ordered the removal of places of worship from Mauna Kea. The later involving the removal of a family shrine of several members of the Mauna Kea Anaina Hou on two separate occasions.

It is safe to say at this juncture that the UH/IFA have not fulfilled their dudes or obligations and have not acted in good faith, disregarding the host cultures' input, concerns and more importantly, its spiritual connection to Mauna Kea. It is further obvious that the UH/IFA intends on continuing to develop and expand their astronomical agenda, what is

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not obvious however, is how they intend on taking responsibility for their past and ongoing infractions that have led to such adament public outcry.

The management and protection of the sacred nature of Mauna Kea and its natural, cultural, historic and scientific resources CLEARLY CANNOT BE BASED ON GOOD FAITH AT THIS LATE DATE. The poor track record of the UH/IFA speaks for itself and the recent State Auditor's report validates this. **OUR DECISIONS SHOULD BE BASED ON THEIR TRACK RECORD AND NOT SIMPLY ON THEIR PROMISES.**

The Liability of the State of Hawai'i:

In 1995, as a result of public outcry and in an effort to skirt any libility, the UH/IFA created a "Revised Mauna Kea Management Plan", which basically accomplished only two things:

1. It transferred all prior responsibility for the management and enforcement aspects of the lease from the UH/IFA back into the hands of the State of Hawai'i, Department of Land and Natural Resources (DLNR). Prior to this change, the sub-leasees had agreed to fund and provide some protections. This change was approved by the State Board of Land and Natural Resources under its former chairman, Michael Wilson.

2. It empowered the UH/IFA to regulate all public access.

It is obvious that the second regulation is ineffective with regard to Native Hawaiian rights to access and religious worship as well as the public's right to use a State roadway. The real problem lies with the first regulation which exempted the UH/IFA from funding the management and enforcement responsibilities it had agreed to from the beginning. The State of Hawai'i has clearly been remiss in its fiduciary duty and responsibility to enforce the pertinent laws and protect the rights of the Public and Native Hawaiians.

The **State of Hawai'i has a fiduciary responsibility to protect the rights of the Public and the Native Hawaiian.**

The State of Hawai'i is now liable and the various observatories, their respective governments along with the UH/IFA, pay only $1.00 per year for their leases. The UH/IFA argues that the observatories pay for the use of Mauna Kea by paying the UH/IFA in time and usage on the various observatories. This, in actuality is the UH/IFA paying itself.

lime Equals Money; Funding and How it Works:

The observatories are all required to give observing time to the UH/IFA. This is used by UH/IFA staff and students to conduct various research projects. All observatories give ten percent of their annual observing time to the UH/IFA with one exception. The

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Smithsonian Institute is required to give fifteen percent of their annual observing time to the UH/IFA.

The operating costs associated with astronomical observation can range from $10,000 - $60,000 per night, with the newer observatories requiring the higher costs. The UH/IFA receives approximately 36 nights from each observatory on an annual basis. Calculating the rates received by the W.M. Keck Observatory at $5,000 per hour, $60, 000 per night, or $21.7 600,000 annually.

It is clear that just a few nights per year cashed in could provide funding for the management and protection of Mauna Kea and should not even be an issue.

Astronomy is a very competitive scientific discipline. There are many astronomers and universities globally who compete to acquire time on the world class observatories of Mauna Kea. The UH/1EFA allegedly does not re-sell their time allotments and only uses it for its own observing proposals. If this is indeed the case, it is still time that is not well spent. Although time given to the UH/IFA is not cash in hand, time in this case is a resource that can be sold on the market and translated into revenue. It is clear that one department of the University of Hawai'i is in control of a tremendous resource and also the destroyer of another - Mauna Kea. The question remains; If **the UH/IFA truly are concerned with** the protection of Mauna Kea, the world's very best observation point, why haven't they offered to sell this time to fund more adequate management of this precious resource?

The UH/IFA is not a Qualified Resource Manager:

The State Auditor and the community have outlined the deficiencies in the oversight of Mauna Kea by the UH/1EFA. The community is deserving of professional management and protection of the sacred nature as well as the cultural, historic and natural resources of Mauna Kea. The State of Hawai'i, Department of Land and Natural Resources is actually the only legislatively mandated entity with the professional expertise capable of such resource management. It is however, grossly understaffed and underfunded to be able to do the job professionally, especially on the $1.00 per year lease payment the State now receives. Why would anyone **believe that a professional carpenter could perform brain surgery** and succeed? Astronomically, the UH/IFA is defiantly among the best in the world but it is not the best **resource manager for the job of protecting Mauna Kea.**

Is Astronomy a Clean Science?

Mauna Kea is one of the principal aquafirs for Hawai'i Island. Although by industrial standards astronomy is considered a clean industry, it is not without toxicity. In the author's ten years tenure of service on Mauna Kea, there have been instances of toxic spills on this sacred resource. Others have shared their experiences with the author regarding many toxic spills which include but are not limited to mercury spills, etholene clycohol, hydraulic fluid, diesel fuel and sewage spills. Most recently, while the W.M. Keck Observatory was digging and laying forms for their outrigger project, the author witnessed

leaking puddles of hydraulic fluid beneath the huge earth movers which were used for this project.

The percolation rate of the soil of Mauna Kea is approximately twenty Inches per hour. There are numerous water caves and underground streams which are relatively close to the surface of the summit region. These sacred and pristine sites are always in danger of contamination generated by the spillage o f toxic substances from the observatories. There does not appear to be any disclosure of the use of toxic chemicals in either the 1983 Mauna Kea EIS/Master Plan or the new Master Plan regarding the use of these toxic substances.
if there is no disclosure then how will the observatories be regulated to insure compliance with the National Environmental Policy Act and State Environmental Protection statutes.
The Mauna Kea Anaina Hou is deeply concerned for the health and welfare of the

people
of Hawai'i, the sacred ocean as well as the healing waters of Mauna Kea.

The **Mo'olelo of Kanekawaiola and Poliahu:**

The God Kanekawaiola whom is revered in the traditions as the creator and protector of all fresh water, holds a significant place in the oral history of Mauna Kea and for the "Waters of Life" generated there.

The Goddess Poliahu, although best known for her snowy essence and bodily forms is also of the sacred waters of Mauna Kea. Oral traditions indicate that many people have gone and continue to go to Mauna Kea to harvest the healing waters, snow and ice of this sacred place. Oral histories discuss the many underground, inland, shoreline and deep ocean waters that originate atop Mauna Kea.

The Protection and Preservation of Mauna Kea:

The Mauna Kea Anaina Hou firmly believes that the protection and perservation of this sacred resource can be realized if the following criterion are implemented.

1. No further development or expansion on Mauna Kea should be allowed.

2. The control of Mauna Kea inclusive of the management, protection and enforcement responsibilities must be taken out of the hands of the UH/IFA and redirected to the Department of Land and Natural Resources of the State of Hawai'i.

3. A fair percentage of the observing time allotted to the UH/IFA by each observatory should be resold by the observatories and earmarked for a special fund and the cash value redistributed for the following purposes.

A. To fund various programs within the Department of Land and Natural Resources:

1. State Historic Preservation Division:

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A. The History and Culture Branch i.e., for die Burial Sites

Program and a Special Mauna Kea Management and Education Program.

B. The Archaeology Branch
C. Chairman's Discretionary Fund

The Mauna Kea Anaina Hou believes that we have developed a plan that would receive broad based support and would fulfill the following criteria

Criteria:

1. Provide sustainable funding for the protection and preservation of Mauna Kea - TheSacred Resource.
2. Create educational opportunities for Hawai'i's diverse community.
3. Increase public safety through an enhanced enforcement presence.
4. Reduce overall State liability through effective, professional and qualified resource management.

5. Provide the Scientific-Astronomical community with the additional time to focus on what they are best at - astronomy.
6. The satisfaction of the various user observatories at no extra cost.
7. Insure compliance with all Federal, State and County laws.
8. Create a management entity responsible for the day-to-day protection and preservation of Mauna Kea.
9. Create a permanent venue for broad based Native Hawaiian and community involvement.
10. Insure that the religious, cultural, historic, environmental and natural resources of Mauna Kea are restored for the benefit of Hawaii's children.

Implementation

1. **Providing Sustainable Funding:** Through the re-allocation and re-apportionment of some of the observing time currently allotted to the UH/IFA. This would provide a conservative* revenue stream of $5,000,000 annually. This would be accomplished by reallocadng the 10-15 percent observing time given annually to the UH/IFA and re-directing 80 percent of this time towards the implementation of this plan. The implementation of this plan would be accomplished through the creation of a Mauna Kea Management entity located within the State Department of Land & Natural Resources' Historic Preservation Divisions' History and Culture Branch. **(The Keck Oservatory cites operating costs at $60, 000 and the Gemini Observatory cites operating costs at $30, 000 per night respectively. This totals $21,900,000 for the Keck and $10,950,000 for the Gemini).*

2. **Creation of Educational Opportunites:** Through the assessment of the educational needs of Hawai'i's diverse community and the effective networking with various educational organizations such as die State Department of Education, the

University of Hawaii and other private universities, this would be inclusive of the immersion schools as well. sectors of the tourism industry could also be included in this educational effort with regard to this most sacred resource.

3. Increased Public Safety: This would be accomplished through the granting of enforcement powers to DLNR personnel within the new management entity in addition to other duties set forth in the job descriptions for these new positions. These other duties would also require the protection of cultural, historic and religious sites as well as natural resources and environmental management. Training in dealing with medical and other emergency situations could also be provided for.

4. Reduction in Overall State Liability: The liability of the State of Hawai'i would be reduced due to the careful and professional management by the agency principally and statutorily responsible for this task. This agency, the DLNR, is by far the most qualified resource management entity in Hawai'i. The inability of the UH/IFA to adequately manage this resource over the last thirty years resulted in numerous violations of Federal and State laws, which expose the DLNR and the entire State of Hawai'i to possible litigation.

5. **Providing the Astronomical Community more time to do Astronomy:** The creation of the new management entity within the DLNR would allow the scientific community to better focus its time, effort and resources toward its primary objective.

6. Satisfying the Users: The implementation of this plan would not require any additional cost to the respective governments, which currently make up the astronomical community on Mauna Kea. It would only reduce the time allotted to the UH/IFA

7. Insuring Compliance: The new management entity within the DLNR would be empowered to enforce compliance with applicable Federal, State and County laws.

8. Creating a Permanent Venue for Involvement: Through its educational programs and community consultation, the management entity of the DLNR would provide for enhanced Native Hawaiian and community involvement.

9. Insuring Restoration: The implementation of this plan and the creation of the Mauna Kea Management entity within the DLNR, coupled with a reliable funding source, would be sufficient for the care of this sacred resource from the era of sustainable management to the full restoration of Mauna Kea. The vast resources of Mauna Kea have been neglected through years of mismanagement and gross under funding. This sacred resource, given perpetual funding and professional resources management, will be restored for the benefit of Hawai'i's children and the world.

Proposed Budget:

1. Personnel

A. 10 full time Mauna Kea Management Specialists 1 Command Post Position, 2 Patrol Positions on day shift. 1 Command Post Position, 1 Patrol Position on night shift. Approximately $40,000 per year plus $30,000 in associated benefits. Cost for management specialist: $700,000 per annum

B. Mauna Kea Management Program Director
I Position @ approximately $50,000 per year plus $40,000 in associated benefits.
Cost for Program Director: $90,000 per annum.

C. Secretarial Support
2 Positions @ approxiamately $25,000 per year plus $15,000 in associated benefits.
Cost for Secretarial Support: $80,000 per annum.

D. Total Cost for Personnel

Management Specialists	$700,000
Program Director	$ 90,000
Secretarial Support	$ 80,000
Total Cost	**$870,000**

2. Equipment:

A. Automobiles
2 Special Utility Vehicles with four wheel drive capability @ $35,000 per.
1 Mini Van with seven passanger capability @ $25,000 per unit.
Cost for Automobiles: $95,000 over the life of the warranty of the vehicles.

B. First Aid Equipment Estimated cost for associated first aid equipment: $7,000

C. Flashlights Estimated costs for flashlights :$3,000

D. Safety Clothing Estimated cost for safety clothing: $5,000

E. Total Equipment Costs: **$110,000**

3. Communications:

A. Two-way radio communications system 5 hand held two way radios with back up batteries and chargers. Installation of command post base radio dispatch system Labor associated with installation Service contract for maintenance Cost for two-way radios: $15,000

4. Office:

A. Office Equipment and Supplies
5 Work Stations @ $5,000 per station
Desks, Copier, Fax, Office Furniture, Printers @ $20,000
Phone System @ $3,000
Office Supplies @ $3,000
Cost for Office Equipment and Supplies: $3 1,000

5. Utilities:

A. Phone and Electric
Phone @ $1,000 per mo. or $12,000
Electric @ $1,000 per mo. or $12,000
Cost for Phone and Electric: $24,000

6. Estimated Budget Total:

A.	Personnel	$870,000
B.	Equipment	$110,000
C.	Communications	$153,000
D.	Office	$ 31,000
E.	Utilities	$ 24,000
F.	Total Estimated Budget Cost	$1,050,000

Appendix C

OVERVIEW

THE AUDITOR
STATE OF HAWAII

Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve

Summary

Over the past thirty years, the University of Hawaii and the Department of Land and Natural Resources have managed the Mauna Kea summit and the Mauna Kea Science Reserve primarily for the development of astronomy facilities. With growing concerns over the protection of Mauna Kea's natural environment, the 1997 Hawaii State Legislature, through Senate Concurrent Resolution No. 109, requested the State Auditor to conduct an audit of the management of Mauna Kea and the Mauna Kea Science Reserve.

The development of astronomy facilities on Mauna Kea has a long history. While interest can be traced back to the early 1900s, increased federal funding during the 1960s allowed the University of Hawaii to explore Mauna Kea as a site for astronomical facilities. In 1968, the Board of Land and Natural Resources recognized the university's interest in astronomy and approved a 65-year lease for lands above the 12,000-foot level of Mauna Kea. In 1969, the university established the Institute for Astronomy and began to actively develop telescopes on the summit. Thirteen separate telescopes and one antenna have been built or are under construction on Mauna Kea. An estimated $600 million was spent to construct these facilities.

We found that the University of Hawaii's management of the Mauna Kea Science Reserve is inadequate to ensure the protection of natural resources. The university focused primarily on the development of Mauna Kea and tied the benefits gained to its research program. Controls were outlined in the management plans that were often late and weakly implemented. The university's control over public access was weak and its efforts to protect natural resources were piecemeal. The university neglected historic preservation, and the cultural value of Mauna Kea was largely unrecognized. Efforts to gather information on the Weiku bug came after damage had already been done. Trash from construction was cleaned up only after concerns were raised by the public. Old testing equipment constructed in the early years of development has not been removed as required by the lease agreement.

We found that new technology requires the university to change its approach to future development within the Mauna Kea Science Reserve. While recent development of interferometers was not part of the original master plan, interferometers serve as an important component to astronomical research. Interferometers, however, have multiple antennas that spread out over a much

wider land area than traditional telescopes. The development of these types of instruments, as well as other new technology, requires the university to reassess its methodology for managing future telescope development.

We found that the Department of Land and Natural Resources needs to improve its protection of Mauna Kea's natural resources. The Conservation District permitting process could be strengthened by ensuring the setting of specific conditions relating to the Environmental Impact Statement's mitigating measures and implementation of management plans. We also found that permit conditions, requirements, and regulations were not always enforced. Finally, administrative requirements were frequently overlooked or not completed in a timely manner.

Recommendations and Response

We recommend that the university ensure that the Institute for Astronomy begin the planning process for the next master plan. In doing so, the university should seek input from DLNR and the general public early in the planning process. The master plan and attending environmental impact statement should clearly identify areas suitable for astronomical development; critical habitats of plants, invertebrates, and other rare or endangered species; and areas where no development should be planned. We also recommend that the university develop rules and regulations; hire rangers/guards; require the public to register at the visitor station; conduct periodic inspections for trash; remove old equipment; and develop a forum for continuous community input.

We recommend that the university develop a new methodology to measure the impact of future development on Mauna Kea. The new method should assess the impact of each project, as well as the impact on the total development. In addition, this new methodology should be approved by the Board of Land and Natural Resources.

Finally, we recommend that DLNR do the following: (1) review and rewrite applicable environmental impact statement mitigating measures as specific Conservation District Use Permit conditions; (2) include permit conditions (and time frames) that require the implementation of management plans that are approved by its board; (3) establish controls to ensure the timely completion of administrative requirements; (4) ensure that enforcement of rules not related to the department clearly rest with the university; (5) complete and implement the Historic Preservation plan; and (6) adopt rules for the Historic Preservation Program, Chapter 6E, HRS.

The university and the department generally agreed with our findings. Some of the additional information provided by both agencies was incorporated in the final report.

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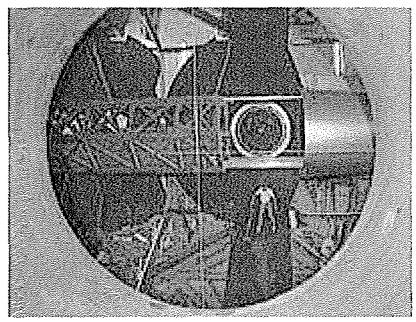
Appendix D

Science, Culture Clash Over Sacred Mountain

SUNDAY REPORT
Los Angeles Times
March 18, 2001
By USHA LEE McFARLING, Times Science Writer

The Sierra Club's Nelson Ho visits a shrine on Mauna Kea. (photo)



Technicians clean mirrors on Keck II telescope (photo)

Photos by KEN LOVE / For The Times

MAUNA KEA--When Ed Stevens drives the dusty track to this wind-swept summit atop Hawaii's Big Island, he tries hard not to see the gleaming white and silver telescope domes set starkly amid this dormant volcano's red rock.

He tries not to see where precious cinder cones--homes to goddesses--were flattened and paved for the hulking Western machines. He tries not to see a blindingly white radio antenna dish within a stone's throw of an ancient rock shrine that resembles Stonehenge.

"I go up there and I don't see them. Because if I see them I get angry," said Stevens, 70, who regularly drives two hours from his house in Kona to worship at Mauna Kea. In the naturalistic religion of Hawaiians, Mauna Kea--the White Mountain--is the highest temple in Polynesia, where, amid the snow, Hawaiians placed shrines and practiced burial rituals so secret that it is taboo to speak of them to outsiders.

But he can't ignore the newcomers completely. "You hear this humming," he said. "It's so intrusive when you are trying to commune with these entities. These benefactors."

The mountain is equally sacred to astronomers: With its astonishingly clean, clear and dark skies, it is the best place on the planet to view the universe. This desolate peak holds the world's densest concentration of telescopes: 13, including the world's two largest.

When the first telescopes rose from the mountain--one a year in 1968, 1969 and 1970--there was not a peep of dissent from Hawaiians. Thirty years and nearly $1 billion worth of telescopes later, though, Hawaii is a very different place.

A once fledgling Hawaiian movement has grown into a vocal political power in the islands. There are calls for secession from the United States, a return of native Hawaiian lands and, on Mauna Kea, a moratorium on telescopes and even their removal.

Hostage to the dispute is a high-profile National Aeronautics and Space Administration/ Caltech project that is crucial to developing the world's next generation of telescopes, a

project that could be the first to image distant planets that might harbor life. The $50-million project is already a year behind schedule. If some Hawaiians have their way, it will not be built at all.

The emotionally charged debate over modern and ancient uses of this rocky pinnacle is much more, though, than a fight over a telescope or a mountaintop. To many Hawaiians, nothing less than the future of their homeland is at stake. And it is a perfect example of the often fumbling progress of science in a multicultural world.

Once prized for the clean industry and jobs they brought to this economically challenged island, astronomers are now lumped in with the missionaries, whalers, plantation owners and golf-course developers who have taken turns carving up this island.

One of the angriest is Kealoha Pisciotta, who, at 30, is as old as the age of modern astronomy in Hawaii.

Pisciotta was one of the first Hawaiians to work at a telescope. She spent long, frigid nights at the summit as a telescope technician, steering the European/Canadian James Clerk Maxwell sub-millimeter telescope toward distant clouds of dust and gas so that astronomers could study the newborn stars cloaked within.

On the way to her high-tech job, Pisciotta would take part in an age-old Hawaiian tradition. She would stop to worship on the flanks of the mountain, bringing small offerings to her family stone, or aumakua.

But that stone has been desecrated. Once, it was taken to the town dump. Once, it was carted off by a fellow telescope employee. And once it was overturned, strewing Pisciotta's aunt's ashes on the ground. Now the stone is missing for good, and Pisciotta, angry that astronomers did not do more to protect her stone, has resigned her position at the telescope.

Today, Pisciotta is angry that astronomers pay Hawaii just $1 per year to use land seized by Americans a century ago. She claims that, in their race to build bigger and better telescopes, the scientists have trampled not only on rare insects, native birds and the mountain's fragile geological landscape, but also on centuries of religious and cultural tradition.

"It truly is not Hawaiians versus astronomy," said Pisciotta, who is still proud of her work on the telescope but can barely contain her exasperation at astronomers. "But they never once have said, 'We screwed up and we're sorry.' They never once said, 'Thank you for letting us use your sacred temple.' "

Hawaiians imbue many natural phenomena--volcanoes, rocks, the ocean--with religious significance. Mauna Kea, at 13,769 feet, is so sacred because it is the closest thing in Hawaii, indeed in all of Polynesia, to the heavens. The towering volcano is considered the piko, or navel, of Hawaii, from which all else arose.

The mountain holds more than 90 shrines and burial sites. None is at the very top, which is considered too sacred even for shrines and certainly for Western machines. A 1996 fire that killed three workers building the Subaru telescope on the mountain was seen by some as a curse, an ominous warning from the gods.

There is much gray area in this collision of unlikely forces. The scientists' goals are lofty ones: to view the stars and answer some of the most riveting questions of our time, questions about the origin of the universe and the beginnings of time.

"These are not greedy guys trying to build a hotel," said Tom Peek, an amateur astronomer, teacher and writer who resigned his job as a stargazing guide on the mountain because he was distraught at how Hawaiian issues have been treated by astronomers. "But their moral compasses become confused because they are blinded by the excitement of discovery."

What astronomers want from Mauna Kea they can get nowhere else in the Northern Hemisphere--pristine, transparent skies unsullied by pollution, dust, water vapor and city light. The otherworldly summit sits high above cloud layers and much of the Earth's distorting atmosphere. The smooth shape of the volcanic cone and the stable temperatures of the Pacific Ocean mean that air flows smoothly over the telescopes. And it is far easier to reach than two other areas with good viewing: the Chilean Andes and the South Pole.

The mountain's crown jewel is the Keck telescope complex: twin behemoths with 10-meter mirrors that are the world's largest gatherers of light. The summit is managed by the University of Hawaii's Institute for Astronomy. Keck is jointly run by NASA, Caltech and the University of California.

These monster "light buckets" trump the orbiting Hubble space telescope for data-gathering capability. They have imaged some of the faintest, most distant objects in the universe and unleashed a string of scientific hits. Using Keck, a Caltech team proved that galaxies formed shortly after the Big Bang, much earlier than expected.

Andrea Ghez, a leading UCLA astronomer, used the machine to pinpoint a massive black hole at the center of our own galaxy. One UC Berkeley team defied odds and used Keck to detect barely perceptible planets around other suns. Another Berkeley team measured supernovae racing away from our galaxy and showed, to the astonishment of many, that the universe is still expanding.

It is a coveted machine and an expensive one. Viewing time costs $1 per second, or $30,000 per night. And Keck is just beginning to flex its optics. Keck's proud director, Fred Chaffee, describes the machine as "Mozart at age 7." The instrument is likely to help answer a host of what scientists call "origins questions"--just how did our solar system form? And our galaxy? And the universe? And, perhaps most pressing of all: Are we alone?

Proud of what they do, and convinced of its importance, many mainland astronomers chafe at the way they have been represented by islanders.

"It annoys me to see astronomers portrayed as tyrants who come in to exploit Mauna Kea. That's very unfair," said Richard Ellis, a cosmologist at Caltech who uses the Keck to study the origin and evolution of galaxies. He recently turned down the directorship of the Institute for Astronomy because he believed that political issues, including the Mauna Kea dispute, were compromising the ability to do first-rate science there.

"We're searching for truth and knowledge, the kinds of things that have motivated countries for centuries. We don't need to apologize. We need to explain what we do."

Yet the accusations cannot be completely denied.

"It comes as a shock, but there's an element of truth there, isn't there?" said Robert A. McLaren, a Canadian who oversees astronomy on Mauna Kea for the University of Hawaii's Institute of Astronomy. "Just because you have a noble purpose and you don't mean [to cause] any harm doesn't mean you don't.

"The desire is there to do a much better job," he said. "What's not negotiable is the desire to have a world-class observatory."

Litter Complaints

The imbroglio at the summit started with something very small: a few pieces of construction trash blowing down from the telescopes. In 1994, Sierra Club members noticed the debris and called Nelson Ho, a club leader, to complain.

"I'm an amateur astronomer myself," said Ho, a seasoned environmental leader who approached astronomers as colleagues. But the Mauna Kea astronomers, he said, brushed off his complaints. The trash was not cleaned up until 1995, after Ho enticed a local newspaper to write a front-page article.

By then, Ho was looking into the telescopes in detail and criticizing astronomers for taking shortcuts, ignoring environmental laws and sneaking projects in with little or no public review.

In 1996, an entomologist discovered that construction at two telescopes had destroyed critical habitats for the Weiku bug, a quarter-inch creature found only atop Mauna Kea, feasting on wind-borne insects and protected from freezing by a strange biological antifreeze.

Others were angry that the telescope builders had placed their machines too close to pu'u, or cinder cones with religious significance, even flattening some of them.

And there was an outcry over how astronomers tallied telescopes. Astronomers said that arrays of telescopes, even those with two dozen components, should count as one telescope because such an array is a single scientific instrument. Hawaiians argued that, from a land-use perspective, each machine should be counted separately and to do otherwise is to play a shell game.

"We can count," Pisciotta said.

In 1998, the state published a scathing audit on summit management that backed many of the Hawaiians' claims, but that is still hotly contested by the university's McLaren. It accused the University of Hawaii of neglecting historical, cultural and natural resources on the mountain and focusing primarily on building telescopes and boosting its own research program.

In response, the university hired consultants to create a new master plan to govern the mountain. They asked for public input at open hearings. It was like uncorking a bottle of anger, frustration and tears.

"It is inconceivable to me, people on this committee could even consider asking for anything more, except forgiveness," a stern Pisciotta said in May 1999 as she joined a long line of those who came to speak.

It took more than a year of discussion and committee meetings to draft the master plan. The effort involved one of Hawaii's most powerful figures, Sen. Daniel K. Inouye; the university's board of regents; and a panel of Hawaiian elders led by Stevens.

On June 16, the regents approved the plan. It allows astronomers three new telescopes, not five. A new management board that includes Hawaiian representation will oversee stewardship of the mountain. Oversight will be based not on the neighboring island of Oahu, but in the nearby city of Hilo, soothing notorious inter-island politics that have further mired the debate.

But many Hawaiians remain deeply unsatisfied. A good deal of the wording is vague. And much remains to be negotiated, including each new construction proposal, including the Caltech/JPL project now in limbo.

Anger flared anew late last year when UC Santa Barbara publicized plans to build a 30-meter telescope, the California Extremely Large Telescope, and place it, perhaps, atop Mauna Kea.

That was proof, Hawaiians said, that astronomers would arrogantly move forward despite local concerns. Astronomers on Mauna Kea, and many at Caltech familiar with the controversy, cringed at UC Santa Barbara's announcement, calling it premature and badly timed.

Astronomers are still reeling from the hostility that has been directed at them, anger that still echoes in letters to local newspapers. For three decades, astronomers had been golden children on the island, featured in one governor's campaign literature as the future of a modern Hawaii and touted for bringing about $142 million into state coffers each year.

"This is not to minimize or try to downplay the feelings we've heard recently," McLaren said in a recent interview. "All I'm saying is, it was so different from what we'd experienced in the past."

Bonding Agent

In 1970, when Kealoha Pisciotta was born and the mountain bore just three small telescopes, Hawaiians weren't allowed to speak their own language in schools. And their voices, even when it came to protecting their precious Mauna Kea, were muted.

"Native Hawaiian self-esteem was so low, they didn't know how to argue. They didn't know how to object," said Nainoa Thompson, 47, a modern Polynesian navigator who has re-created the long-distance ocean voyaging techniques of his ancestors, navigating by the stars among Hawaii, Tahiti and Easter Island.

Through these journeys, Thompson has become a potent symbol of the resurging pride in Hawaiian culture. But he still cringes when he recalls that his grandmother was beaten for speaking her native Hawaiian language in school.

Pualani Kanahele, the daughter of a revered cultural leader on the Big Island, cringes too, and weeps openly when discussing the mountain. She won't even look up at Mauna Kea now, because she did nothing to stop the telescopes, which she, like many here, call pimples. "I have to stand up to my grandkids," the anguished Kanahele said at one hearing, "and say, 'I never did anything.' "

Telescopes may seem an unlikely bonding agent for a budding indigenous political movement. But the fight against development on the mountain is bringing together Hawaiians of all types, not only cultural practitioners, activists and environmentalists, but also grandmothers, students, engineers and even retirees who pledge to throw their bodies in front of construction equipment.

"If you're going to push on this," warned Mililani Trask, an outspoken lawyer and community activist who recently served as president of Ka Lahui Hawai'i, a Hawaiian nation proposed by pro-sovereignty groups, "we're going to push you back."

The Hawaiian independence movement has gained much momentum since 1993, when Congress and President Bill Clinton formally apologized for the illegal overthrow of the Hawaiian monarchy 100 years before. A year later, the Navy returned a small island, Kahoolawe, that it had long used as a bombing range. And Hawaiians are still fighting to regain control of 1.8 million acres of ceded lands that once belonged to Hawaii's queen.

The Mauna Kea Astronomy Precinct sits squarely on those ceded lands.

The battle over telescopes has become a chance to reclaim, symbolically and practically, ground that their people lost long ago.

"Mauna Kea is the center of our spirituality," said Thompson, who also sits on the University of Hawaii's board of regents. "For it to be the place we debate this issue is not by chance."

Chaffee, the director of the Keck, agrees. "This isn't about astronomy," he said. "We're just the most visible thing. We're a lightning rod for years and years of distrust."

Links to Astronomy

The challenges of conducting science in a multicultural world vex scientists who are used to getting their way.

In Arizona in the late 1980s and early '90s, astronomers circumvented environmental and cultural preservation laws by winning a congressional exemption to build telescopes on Mt. Graham, a mountain considered sacred by many Apaches.

Last year, in a very different outcome for science, then-Interior Secretary Bruce Babbitt ordered the bones of the 9,300-year-old Kennewick Man returned to five American Indian tribes--to the emotional wails of scientists who called the decision a death blow to anthropology.

In Hawaii, as in all melting pots, there are unexpected synergies. Hawaiians have a strong link

with astronomy: The first Hawaiians, the skilled Polynesian voyagers, navigated by the stars. Today, Hawaiian elders speak easily of galactic nebulae and supernovae. Astronomers, likewise, can relate oral Hawaiian legends set on the mountain. Telescope director Chaffee takes lessons in the Hawaiian language.

Still, an almost unfathomably deep culture clash remains. The very traits that make for a successful scientist today--a dispassionate, detached view of the world and an extremely narrow focus on a single question--are characteristics that many Hawaiians mistrust.

"You can't have a one-track mind; all you want to do is look up in the sky at those things and not care about anything else," said Larry Kimura, an assistant professor in the budding Hawaiian language program at the University of Hawaii at Hilo who helped head the committee that drafted the master plan. "You don't just start plopping things all over the place--your million-dollar machines--without thinking of giving anything back."

Many Hawaiians say the astronomers have been especially callous in naming the machines. A large telescope now on the drawing board has been dubbed "GOD," for giant optical device. Auxiliary telescopes planned for the Keck telescope are called "outriggers"--a nod to boats used by Hawaii's legendary sea voyagers that native Hawaiians see as condescending.

Kimura's cultural connection to the mountain is a personal one: His family is one of many that participate in the ritual of depositing the umbilical cords of their children in the sacred waters of Mauna Kea's Lake Waiau--a way to connect the newly born to their spiritual home.

"We are not just people of yesterday," said Kimura from an office where fragrant ginger flowers sit atop a turquoise computer. "We are also people of today."

Hawaiians are not the only ones frustrated by cultural differences. McLaren is among astronomers who feel blindsided by Hawaiian complaints that did not surface when the telescopes were being planned. (Objections raised initially in the 1970s and '80s centered on environmental issues and access to the mountain for hunters and hikers.)

"With our Western ways, we speak up. That's not necessarily the Hawaiian way," McLaren said.

But he does admit that the astronomers who planned the mountain should plead guilty to cultural ignorance.

"They didn't put those [telescopes] up there because science is more important than Hawaiian culture," he said. "They put those things up there because they didn't think of Hawaiian culture at all."

Tricky Technology

For astronomers, passage of the master plan was a victory, but a humble one. Said Keck Director Chaffee, "It's what we've been working on for three years--to get to the starting line."

Though he is hovering behind the starting line, it is obvious Chaffee wants to sprint.

When the controversy over the mountain broke, Chaffee was in the middle of a major effort to beef up the powerful Keck. The project is the $50-million Keck Interferometer. It aims to ring the two massive Keck telescopes with four to six smaller "outrigger" telescopes and then to pool the light from all of those instruments. Astronomers are almost giddy at the prospect; it would mean the combined telescopes could image distant objects about 10 times more sharply than they can today and could start making maps of nearby stars and their planets.

The Caltech/JPL interferometer project is a linchpin of the NASA Origins project, an energetic push to find other planets that might harbor life.

The technology is tricky. Precisely merging a number of speeding light beams has been a major challenge for JPL engineers. Last week, they linked the light from the two large telescopes for the first time.

Proof that linking a number of telescopes together can work on the ground is the first step in developing a new generation of space interferometers that could detect Earth-sized planets and eventually build a "Terrestrial Planet Finder" that could image those planets in a search for life.

A permit to build the new telescopes--which must be granted by Hawaii's Department of Land and Natural Resources--will be the first test of the fragile agreement on the mountain.

As NASA gets closer to asking for its permit, opposition gets louder.

The Sierra Club, which has praised NASA for conducting recent environmental reviews on Mauna Kea, nevertheless wants a full environmental impact statement, a process that could take months. Last month, the Office of Hawaiian Affairs dismissed NASA's plans to mitigate damage to the summit as "vague and ambiguous at best."

"While NASA searches for other life forms in space," deputy administrator Colin Kippen Jr. wrote to NASA officials, "it is ironic that its search may extinguish an entire species of the Weiku bug here on Earth."

Ahahui Ku Mauna, the panel of elders led by Ed Stevens that has been negotiating with astronomers, announced last month that it would not support the Keck project until it receives assurances that astronomers would give something back to Hawaiians. Council members are seeking long-term funding of programs that could help the native Hawaiian community.

For now, no one can predict which way the decision will go.

With so much at stake, Chaffee, and even the top NASA administrator in charge of the project, Rick Howard, are both willing to go slowly.

"We're trying hard to listen to concerns," said Howard, a senior executive at NASA's Washington headquarters who formerly managed the Caltech Submillimeter Observatory on Mauna Kea. "No one had been listening to them for 100 years."

Astronomers also have started sharing their science--making school presentations and hiring Hawaiian students, in hopes that they will spur a new generation of Hawaiian-born

astronomers. An $11-million astronomy facility in Hilo, dedicated Feb. 23, will help foster a new degree program in astronomy offered at the university's Hilo campus.

The Mauna Kea Visitor Center now offers cultural programs for the hordes who ascend in the evening to gaze at the stars through small telescopes put out for the public.

But the astronomers' main focus--and their fear--remains pinned on the mountaintop. The Keck outriggers have become hugely symbolic.

To Chaffee, they are a chance to move ahead, painstakingly, and get the process right by "meeting both the spirit and the letter of the law." The tiny telescopes have already generated more paperwork than their massive brothers, Kecks I and II.

Astronomers don't want to squander their claim, or their right to be on a mountain they find so precious. "I've got to look, not just at Keck, but at the future of astronomy in this part of the world," Chaffee said.

To Hawaiians, the outriggers could open the door to a slew of new interferometry projects, and to telescopes multiplying like rabbits across their sacred landscape.

"We were asleep too long," Stevens said. "We won't go to sleep again."

Ho`iho`i Mai

Kaulumehi

Return

---

kale@moolelo.com

www.moolelo.com/maunakea-latimes.html

Appendix E

Submillimeter Array Telescope (SMA). Said improvements, together with additional improvements to be constructed outside the demised premises as described in section I.C. below, shall be referred to hereinafter as the 'Facilities'.

Copy of section I.C. is attached (EXHIBIT B).

Land title status: Subsection 5 (b) lands

Sublease consideration: $1.00 per annum

Sublease term: May 15, 1995 to December 31, 2033

BACKGROUND:

The sublease agreement started May 15, 1995 and is covered by CDUA HA-2728. The telescope facility is the Submillimeter Array.

RECOMMENDATION: That the Board:

1. Consent to the above named sublease, subject to the following terms and conditions:

   A) Provisions of Section 171-21, Hawaii Revised Statutes, as amended, relating to rights of holder of security interest.

   B) Review and approval of the consent form by the Department of Attorney General.

   C) Such other terms and conditions as may be prescribed by the Chairperson to best protect the State's interest.

Respectfully submitted,

Charlene E. Unoki

APPROVED FOR SUBMITTAL:

MICHAEL D. WILSON, Chairperson

August 21, 1997

Board of Land and Natural Resources
State of Hawaii
Honolulu, Hawaii

HAWAII

SUBJECT: Consent to sublease of General Lease #S-4191, Kaohe, Hawaii, tax map key: (3) 4-4-15-9

Sublease: University of Hawaii, Sublessor and National Astronomical Observatory of Japan, Sublessee.

Encumbrance: General Lease #S-4191 issued to the University of Hawaii.

Lease term: Commencing January 1, 1968 to December 31, 2033 (65 years).

Lease rental: Gratis

Location and area: Mauna Kea Science Reserve at Kaohe, Hamakua, Hawaii, tmk: 4-4-15-9. (EXHIBIT A)

Character of use: Scientific complex, including without limitation thereof an observatory, and as a scientific reserve being more specifically a buffer zone to prevent the intrusion of activities inimical to said scientific complex. Activities inimical to said scientific complex shall include light and dust interference to observatory operation and certain types of electric or electronic installation on the demised lands, but shall not necessarily be limited to the foregoing.

Sublease use: Erecting a telescope facility to be constructed and operated by and at the expense of Sublessee through a contractual arrangement set forth in a separate "Operating and Site Development Agreement Between the National Astronomical Observatory of Japan and the University of Hawaii Concerning the Design, Construction and Operation of the 8-Meter Japan National Large Telescope on Mauna Kea, Hawaii (OSDA). Construction will include the Japan National Large Telescope (JNLT) building and dome, its optical/infrared telescope having an effective diameter of approximately 8 meters, related equipment and instrumentation and related support facilities and infrastructure improvements required on the demised premises to support the operations

of the JNLT.

Land title status: Subsection 5 (b) lands

Sublease consideration: $1.00 per annum

Sublease term: June 5, 1992 to December 31, 2033

BACKGROUND:

The sublease agreement started June 5, 1992 and is covered by CDUA HA-2462. The telescope facility is the Japan National Large Telescope (Subaru).

RECOMMENDATION: That the Board:

1. Consent to the above named sublease, subject to the following terms and conditions:

   A) Provisions of Section 171-21, Hawaii Revised Statutes, as amended, relating to rights of holder of security interest.

   B) Review and approval of the consent form by the Department of Attorney General.

   C) Such other terms and conditions as may be prescribed by the Chairperson to best protect the State's interest.

Respectfully submitted,

Charlene E. Unoki

APPROVED FOR SUBMITTAL:

MICHAEL D. WILSON, Chairperson

Appendix F

Local News
HonoluluAdvertiser.com
Wednesday, January 10, 2001

Posted on: Wednesday, January 10, 2001

UH seeks millions more to pay bills

By Jennifer Hiller
Advertiser Staff Writer

University of Hawai'i officials want an additional $31 million a year to replace old technology and implement a management plan for Mauna Kea, the mountaintop that is home to some of the world's best telescopes as well the Hawaiian goddesses of snow and mist. But they also need the money for some more mundane responsibilities: The university can't afford to pay its utility bills.

UH President Kenneth Mortimer and several UH officials made their first official trek to state officials yesterday in advance of the 2001 legislative session, meeting with the House Committee on Finance to outline the school system's needs.

While the state has given UH plenty of money for construction during the past decade, hard economic times have meant the university's operating budget has dwindled, leaving the school unable to keep up with the cost of even basic services. The state has given the university no additional financing, for example, to pay its new utility bills, which sometimes reach into the hundreds of thousands of dollars each year for some of the science buildings.

"What we've done is fund new facilities without funding their operations," Mortimer said. UH has been forced to take money away from its academic programs to pay for utilities, he said.

UH also has fallen behind in equipment replacement and in the technology in student computer labs, administrative

offices and the communications network.

Also, a new cost for 2001 is the Mauna Kea science reserve management plan, a 20-year plan to restrict telescope development on the Big Island's 13,796-foot mountain and keep scientists and visitors respectful of the summit, which Native Hawaiians regard as sacred.

Mortimer said he hopes the university's budget will begin to recover from the recession of the 1990s, despite the backlog of needs.

"There's a sense we have come through the fire and things are going to get better," Mortimer said. "Talk is more optimistic than in any other time in my years here."

Last year, the state gave UH a 2- percent budget increase. It was the first time in Mortimer's tenure here that he didn't have to deal with a cut in state money for the system's operating budget.

A recent study showed that Hawai'i has limped forward in higher education spending, growing just 22 percent in a decade — barely half the national average — at the same time university appropriations have skyrocketed with the economy in many parts of the nation. For UH, that has meant faculty positions left vacant and repairs left undone.

Hawai'i ranked 45 among the states in increase in the amount of state tax money dedicated to higher education over 10 years, according to a study by the Center for the Study of Education Policy at Illinois State University.

But 2001 may be a departure from the past decade.

Gov. Ben Cayetano has asked the Legislature for a 9.5 percent increase to the UH operating budget. That falls $6.5 million short of what the UH Board of Regents want, but university officials see the increase as a good sign. The governor's budget also designates $237.5 million for capital improvement projects, including the building of a new $141 million medical school and $40 million for facilities improvements.

UH has a $167 million backlog in repairs and maintenance. Mortimer and the Board of Regents are asking for $20 million more each year to the capital improvements budget to chip away at the backlog, in addition to the extra $31 million for the operations budget.

The university's proposed budget would bring financing for operations from $405 million to $435 million.

Still, the biggest priority for the university barely made it into yesterday's discussion. The union representing UH faculty members has reached an impasse with the governor's office over a pay raise for the faculty. It's an issue that is out of Mortimer's hands.

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Appendix G

NEWSLETTER ISSUE NO. 1, FALL 2000

A Publication of the Office of Mauna Kea Management and the Mauna Kea Management Board

Mauna Kea Management Board Formed

After nearly two years of emotional, often-contentious discussions leading up to the adoption of the Mauna Kea Science Reserve Master Plan in June 2000, the newly created Mauna Kea Management Board (MKMB) was officially established on Oct. 1, 2000. Charged by the Master Plan and further defined by related resolutions passed by the University of Hawai'i Board of Regents, the MKMB, along with the Office of Mauna Kea Management and Kahu Kupuna Council, will take a strong advisory role in determining future activities atop Mauna Kea.

The MKMB held its first meeting on Oct. 8, 2000. Its members, nominated by University of Hawai'i at Hilo Chancellor Rose Tseng and approved by the Board of Regents, are:

Members of the recently appointed Mauna Kea Management Board, seated (L-R): Barbara Robertson, James Kennedy, Heather Cole; standing (L-R): Harry Yada, Barry Taniguchi, Arthur Hoke. Missing: Robert Pacheco

Heather Cole is an environmental and cultural consultant who was recently commissioned by The Nature Conservancy to open its Hawai'i Island office. Cole presently manages the Nature Conservancy's Honomalino Preserve and other Hawai'i island conservation and preservation projects. Cole also served as a member of the Hawai'i Island Burial Council for eight years. The Nature Conservancy is involved in several Big Island projects, including gorse eradication efforts on Mauna Kea.

Arthur Hoke played an important role in the process of developing the Mauna Kea Science Reserve Master Plan as a member of Aha Hui Ku Mauna. Hoke also serves as president of the National Association of Hawaiian Civic Clubs. A 29-year veteran of the Hawai'i County Police Department, he recently retired as District Commander of the Laupahoehoe District.

Pacheco

Robert Pacheco, a resident of Holualoa, Hawai'i, is an avid student of Hawaiian and natural history. In 1993, he and his wife founded Hawai'i Forest and Trail, Ltd., a company that specializes in educational nature adventures and free community service activities such as Kama'aina Nature Walks and the Summer with

Continued on page 4

Mission Statement

"Achieve harmony, balance and trust in the sustainable management and stewardship of the Mauna Kea Science Reserve through community involvement and programs that protect, preserve and enhance the natural, cultural and recreational resources of Mauna Kea while providing a world-class center dedicated to education, research and astronomy."

—Mauna Kea Managment Board/Office of Mauna Kea Management—

Appendix H

Towering Mauna Kea gets its own caretakers

❑ Ranger-guides will keep watch, offer help both cultural, scientific

By Dave Smith
Tribune-Herald

There's a new presence atop Mauna Kea.

Visitors to the summit of the 13,796-foot dormant volcano may notice new personnel keeping an eye on activities there.

Mauna Kea Support Services, which operates a visitor center at the mountain's 9,200-foot elevation, has two new employees working on the mountain.

The temporary hirings are part of a four-month, $30,000 pilot program to determine what issues and challenges will be faced by the high mountain rangers.

Mauna Kea Support Services was contracted for the program by the Office of Mauna Kea Management, which was created last year as a condition of the Mauna Kea Master Plan.

The plan approved a year ago by the University of Hawaii Board of Regents called for the establishment of the ranger force and also established the Mauna Kea Management Board, whose appointed members advise the Hilo-based Office of Mauna Kea Management. Kahu Ku Mauna, another appointed panel created by the master plan, is providing the board with advice on Native Hawaiian issues.

The new employees are tentatively being called "ranger-guides."

Ron Koehler, director of Mauna Kea Support Services, described them as sort of a hybrid park ranger who will monitor sites and activities and provide information of a cultural and scientific nature.

Koehler said the rangers won't have enforcement powers and likely won't need them. He said there has seldom been a need for law enforcement on the summit, which depending on the type of incident is currently handled by either state enforcement officers or county police. However, the new rangers will keep track of any violations, Koehler said.

See RANGER-GUIDES, Page 12

RANGER-GUIDES: Eventually, there will be six

From Page 1

"Generally speaking there are not a lot of instances where you need an enforcement officer," he said. "Just the presence of an uniformed officer and a state vehicle could deter illegal activities."

For now the ranger-guides, which started work June 8, will operate out of the Onizuka Center for International Astronomy Visitor Information Station at Hale Pohaku.

The first priority will be to assess issues and areas of concern facing the rangers. A survey of visitors to the summit to determine the number of people and types of activities in which they are involved will likely be done, Koehler said.

In recent years there has been a clash between scientific, cultural and recreational interests on the mountain. The plan approved last year, an update of the original 1983 master plan, is designed to coordinate those interests.

The new rangers will go a long way toward that, said the Sierra Club's Nelson Ho.

Ho said the rangers, which he described as "10 years in the waiting" would provide a valuable service by informing visitors about the need to protect the summit's environment and cultural sites.

"I'm glad there will be a presence focused on interpretation and culture," he said.

According to the Office of Mauna Kea Management, eventually six rangers will be hired to ensure that at least two will be on duty on the mountain during daylight hours.

Their roles will include monitoring of maintenance and construction work involving the 13 telescopes atop the summit — up to three more are allowed in the master plan — as well as commercial tour activities.

Koehler said among other things, the rangers will help ensure that construction crews keep the area clean.

Trash left from work sites was among the concerns expressed by the Sierra Club and other critics — including some practitioners of Native Hawaiian culture — of the way the state has managed the mountain.

A 1998 report by the state auditor said the university and the state Department of Land and Natural Resources has been lax in its management of the historic and cultural resources of the mountain.

He said the rangers will also provide information about health concerns relating to high altitudes of which visitors are often not aware.

The rangers may be a precursor to the establishment of a kiosk on the summit access road where visitors would be stopped and provided information.

Ho said the Sierra Club is worried that a kiosk will be the first step toward the charging of fees to go to the summit which might discourage visits by island residents. He said the club opposes such entry fees.

"This is a public road," Ho said. "(Fees) are the beginning of the alienation of the public and the Hawaiian nation."

Appendix I-K

Mr. Richard Howard
Senior Program Executive
Office of Space Sciences/Code SD
NASA Headquarters
300 E. Street, SW
Washington, DC 20546

Aloha Mr. Kumor,

The Royal Order of Kamehameha I would like to thank you for this opportunity to comment on the Draft Environmental Assessment for the Outrigger Telescope Project- Mauna Kea, Moku 0 Keawe. The extension granted by your agency allowed us to prepare our comments in accordance with the protocols to which we are bound as chiefs.

To ensure a thorough review of the document, we commissioned Mauna Kea Anaina Hou to research the issues addressed in the draft assessment. Although it is a legal requirement that environmental reviews be written in language easily understood by the average person, the criteria used by your agency to comply with that part of the law did not take the average Native Hawaiian into account. With the help of Mauna Kea Anaina Hou, we were able to understand the issues within our own, cultural, context. To this end, we strongly support the inclusion of this group in the 106 consultation process pursuant to the National Historic Preservation Act regarding your project.

The Royal Order of Kamehameha I was founded in 1865 by His Majesty King Kamehameha V in accordance with the principals by which Kamehameha I ruled the Hawaiian Islands. Like all things Hawaiian, the organization was deeply affected by the aggression of western culture and suffered through a period of quiet oppression. At the same time, it has maintained a continuity that makes its role in modern politics unique. The Royal Order of Kamehameha I (ROOK 1) takes its charter to preserve and protect the resources of the Hawaiian people seriously and is currently involved in the process of asserting its authority to fulfill this sacred obligation.

I

Introduction

Mauna Kea is the highest and most renowned temple and Wahi Pana (sacred place of worship) of the Native Hawaiian people. Its summit region is known as Wao Akua - the sacred realm of the Creator. The significance of the Mountain is acknowledged in oral histories throughout all of Polynesia. It is the burial ground of our highest born and most sacred ancestors; it is a temple for worshipping Akua (Creator), Na Akua (Divine Deities), and Na Aumakua (the Divine Ancestors).

For the last 32 years, astronomy has existed on our sacred mountain - Mauna Kea. Indeed, with the largest telescopes ever built occupying the Mountain, it has become known as the world's premiere astronomy center.

Since 1968, when the development first began, there has been resistance from the people of Hawaii It must be recognized however, that this world-class astronomy center was built against the wishes of the Native Hawaiian people and with no recognition of Mauna Kea's significance to them as Hawaii's host culture. The recent University of Hawai'i Master Plan proposal, which promotes further development, generated adamant public outcry from all sectors of the community. Resistance, therefore, has not waned.

Although the sacred nature of Mauna Kea has been recognized by the State Historic Preservation Office (SHPO) through the identification and listing of the summit region as an Historic District and the summit cluster of cinder cones as an Historic Property, no Section 106 consultations pursuant to the National Historic Preservation Act were ever conducted for the any development on Mauna Kea that used federal funds. Further, the Section 106 consultations conducted for the proposed development have been woefully inadequate.

Concerns Regarding the Section 106 Consultation Process

The ROOK I would like to express concern regarding the Section 106 consultation process pursuant to the National Historic Preservation Act being conducted by your agency. In February (2-1-2001) of this year NASA conducted meetings which were to include the Hawai'i Island Burial Council (HIBC), The Office of Hawaiian Affairs (OHA), the Royal Order of Kamehameha, and the Department of Hawaiian Home Lands (DHHL), State of Hawai'i Historic Preservation Office (SHPO) and referred to these meetings as Section 106 consultations.

While the ROOK I Was prepared to attend these meetings and participate in the process, the restrictions imposed on the first meeting by your agency, at the eleventh hour, contravened the protocols to which our organization is bound
and defied the spirit of the law that mandates the consultation process. As a result, we could not participate. Although the extension of the comment period was a step in the right direction, this situation can not be remedied until NASA adopts ground rules that honor the order's protocols. Within these protocols, the order has the authority to convene a process that is inclusive and allows for participation at the grassroots level. Neither the University of Hawai'i, nor their selected representatives, can speak for the Hawaiian people. The people speak for themselves and their chiefs listen. While NASA obviously operates on the premise that government is obligated to listen to the people but is free to dismiss their concerns, the chiefs who comprise the Royal Order can not.

In the winter of last year, the ROOK I conducted a culturally appropriate public hearing on the issue of developing Mauna Kea. We take this

opportunity to notify NASA that, in comparison, the process your agency is conducting is not appropriate; and further, that the results of NASA's process cannot be construed to be the results of a Section 106 consultation process.

To date, the process is incomplete. Until such time as the federally mandated Section 106 process proceeds, the public record stands. The Native Hawaiian community, in all hearings regarding both the Mauna Kea Master Plan and your agency's project, has expressed adamant opposition to any further desecration and or development of the Mauna Kea summit or slopes.

In concurrence with the mandate given by the Hawaiian people, the Alii Nui and Grandmaster of the Royal Order of Kamehameha 1, Gabriel Makuakane, has decreed that "There shall be no further development of any kind on Mauna Kea."

The ROOK I does not believe the Section 106 process being conducted by your agency is inclusive enough to identify and mitigate the impacts this project will have on a sacred, historical, traditional and cultural property.

Concerns Regarding the NASA Draft Environmental Assessment for the Outrigger Telescope Project

A review of the document produced many concerns regarding significant impacts to the traditional, cultural, religious and natural -resources of **Mauna Kea;** These concerns are outlined in the response included below.
endangered species, existing burials and the wealth of natural and cultural resources occurring on Mauna Kea.

9 NASA has failed to justify the need for expansion or further development.

The Weikiu Bug Mitigation Plan

In the days of old when the chiefs and konohiki determined that-any species was being overtaken a kapu was placed upon that species until it recovered. Under this kapu system no one was allowed to touch that species; violation of the kapu was punishable by death.

"According to the Kumulipo (Chant of Creation), before man was created all other living things were created. When the process of creation was complete the gods too were complete and walked the Earth with man. It is believed that all living things, no matter how big or small, have purpose and make the complete whole. When a living thing ceases to exist than the process of creation is unbalanced and begins to unravel."

Testimony by Kealoha Pisciotta - HIBC Commissioner

The Weikiu bug population has been diminished by 99.7% in just 14 or 15 years leaving a population that is 0.3% of the original. These numbers demand serious and immediate response and recovery efforts.

on page 63, the Draft EA states: "The causes of -the Weikiu bug population decline are not known." It is established that any loss of habitat of a species eventually impacts that species negatively. On page C-1 of its Weikiu Bug Mitigation Plan, Pacific Analytics states "it is the intention and hope ... that the Weikiu bug population will actually increase, due to protection and restoration of potentially favorable habitat." The theory

behind this proposed plan, to create a new habitat and hope the Wekiu bug will go there and survive, is flawed **for two principal** reasons:

1.) There is no empirical data outlining what the bugs' behaviors are and how they might respond to the creation of a new habitat, and

2.) the test would be done in parallel with the construction, which will destroy the bugs' original habitat.

It is both just-and reasonable that, until further study is conducted and hard data produced (and verified) to prove that the Wekiu would respond to such a theoretical model, we err on the side of caution. The ROOK I is unable to accept a theoretical model that could, in and of itself, diminish the whole **species.**

- There is no compensation for extinction.

- There is a difference between experimentation and mitigation.

- There is no evidence that NASA's proposed mitigation plan would save the Wekiu bug.

- ROOK I does not support the Wekiu Bug Mitigation Plan as presented in the Draft EA. Clearly the plan fails to address the minimum standard of protection for a species in need of maximum protection. We request that a Federal Environmental Impact Statement pursuant to NEPA be conducted to further evaluate this precious and rare species.

Sacred Landscapes and Visual Aesthetics

Na Pu'u

The Pu'u (cindercones) of Mauna Kea are sacred... they are sacred because they mark certain celestial events and because they are the divine kinolau (body forms) of the deities and they mark important events recorded in the genealogies. Changing the surface and digging into these cinder cones is an act of desecration and alters the landscape of Mauna Kea. This desecration prohibits Native Hawaiians' ability to read the celestial signs and desecrates the divine deities. This desecration has occurred for over 32 years.

'When you talk about digging in the earth, we talk about Pele, Poli'ahu, we talk about for our Native Hawaiians that's our blood. That's the same thing as our physical body."

Testimony by Keolalani Hanoa - HIBC Commissioner

"The telescopes ... are actually an obstruction of sight. Now when our kahuna go up there, they cannot turn 360 degrees and see all the places... they have to walk around the telescopes and that's inappropriate."

Testimony by Kalehua Eaton

Visual Aesthetics

The visual vistas cannot only be evaluated from the ground view looking upward but must also include the perspectives from the summit area itself. Further, these evaluations cannot ignore the Native Hawaiians' relationship to the sacred landscape.

- Alterations to the sacred landscape of Mauna Kea prohibits, changes and impedes our traditional and cultural practices.

- Alterations to the sacred landscape destroy reference points critical to the potency of Native Hawaiian oral traditions. No one has the right to change our genealogies.

- ROOK I does not support any further alterations to the landscape and view planes of Mauna Kea.

Hydrology, Hazardous Materials and Solid Waste Containment Systems.

Hydrology - WAIWAI - Water

The nearest term to wealth in the Hawaiian language is waiwai. The word for water in Hawaiian is wai. This relationship shows the cultural respect and importance the Hawaiian people attributed to water and its essence.

The divine Kanekawaiola, revered in the traditions as the creator and protector of all fresh water, holds a special place in the traditions of Mauna Kea because of the "waters of life" generated there. Poliahu, although best known for her snowy kinolau (divine manifestation and bodily forms), is also of the water.

Contemporary Native Hawaiian practitioners'journey to the Mountain to gather its healing waters. This water is used for medicine, blessings and cleansings and is valued because of its purity. As the snow and ice melt, they become part of a system of underground, inland, shoreline and deep ocean waters that all originate atop Mauna Kea. Hawaiian oral histories document the extent to which Hawaiians understood and valued this important resource. It is said that water from Mauna Kea runs- through the ancient 'auwai' systems (waterways for taro irrigation) that are still preserved in Hilo today.

The Draft EA states (pg. 93) "On-site construction and installation of the proposed project, including the potential for a hazardous substance spill, would not impact ground water resources .....

Mauna Kea is a distinct aquifer system that is linked to other separate, but related, aquifer boundary systems. The East and West Mauna Kea aquifer systems alone produce a sustainable yield of 409 - 444 million **gallons per day** (mgd). The Mauna Kea aquifer boundary systems also feed the Kohala (at 154 mgd) and NE Mauna Loa (21-56 mgd), SE Mauna Loa (291 mgd), SW Mauna Loa (130 mgd), and NW Mauna Loa (740 mgd) aquifer systems. *(N.B. please see Atlas of Hawaii by Juvik and Juvik, third edition.)*

These aquifer systems are fed by a complex combination of hydrological effects that originate from the summit and move downward. These effects include, but are not limited to, shallow subsurface streams, high level springs, the diurnal fog precipitation that occurs throughout the year, the freeze and thaw cycles of buried fossil ice (found a few feet below the surface), permafrost, snowmelt and even rainfall.

While Lake Waiau is the most prominent surface water feature on the Mountain, there are numerous smaller ponds found in the summit cinder cones formed from perching. These also feed the subsurface streams.

contribute to nearly the entire island of Hawai'i- not only is the hydrology complex, it is massive.

Although the Draft EA does mention the basal waters contained far below the summit region, it ignores the fact that these basal systems are part of the larger hydrological systems of the Mountain. While it may seem that the known surface streams occurring 1000-2000. ft. downstream from the summit development are safe from contamination in the event of hazardous spill, there is no data to support this assumption. According to the Draft EA, the percolation rate for water is 20 inches per hour downstream, if this is true, it would take approximately 52 days for contamination to reach these streams. It is possible contamination would not reach the streams at all; but this cannot be determined from the information provided in the Draft EA.

- The Draft EA does not address the complex nature of the hydrology of Mauna Kea, nor does it adequately address the significant and cumulative impacts the proposed project would have on the cultural and environmental resources of Mauna Kea.

Hazardous Materials

The Mauna Kea Anaina Hou has brought to our attention two very important concerns regarding hazardous materials and solid-waste systems.

In March 2000, in consultation with NASA, the Hawaii Island Burial

.Council expressed concern regarding the use of hazardous materials, including but not limited to, mercury, ethylene glycol, and hydraulic fluid. At that time, the HIBC requested from NASA a full disclosure of "...the hazardous materials, including the amounts, safety precautions, and waste disposal..." *(N.B. Please see HIBC March 2000 minutes)* used at the WMKO facility. To date they have not received this information. The ROOK I first became aware of this issue at the March meeting, and we are alarmed that NASA. has not **responded to the HIBC's** request.

The Draft EA states (pg.69) "There have been no mercury spills at the WMKO." The ROOK I is in receipt of a letter from the WMKO Director Dr. Fred Chaffee which is addressed to Nelson Ho of the Big Island Chapter Sierra Club and cites that mercury spills did, in fact, occur on two separate occasions in 1995
(N.B. Please see attached letter from WMKO). These Inconsistent or conflicting reports do not engender trust in this process, as far as ROOK I is concerned.

The Draft EA does provide a much more comprehensive list of the hazardous materials usage, handling, storage and disposal. The Draft EA however, does not provide information on an emergency plan or a disaster plan as is required by OSHA. Nor does it list the reportable quantities of all materials (i.e. according to the State Department of Health the reportable quantities of Mercury are 11b). The amount of Mercury used by the WMKO is 30lbs according to the EA.

- What are the emergency response plans and the disaster response plans for elemental Mercury and other hazardous materials?

The Draft EA states, "It is common practice for concentrated hazardous substances to be diluted by WMKO headquarters staff and disposed of by a licensed waste-handling contractor."

- Who are these licensed contractors?

- By whom are they licensed?

It is our understanding from the Draft EA that this license permits the removal and disposal of the following compounds (for which you have listed both the amounts disposed of and reportable quantities used):

1.) Aluminum Chloride,
2.) Aluminum Sulfate,
3.) Copper Chloride,
4.) Copper Sulfate,
5.) Potassium Hydroxide.

We have no information on carbon disulfide

- What are the reportable quantities of this substance?

We understand that carbon disulfide is added to the residual compounds produced as waste from the aluminum removal process. We understand that this is done to "heavy out" the biologically active copper in the "rinse water', so that it will not enter the waste water system and may be removed as a solid waste from the septic tank.

Regarding the elemental mercury, in spite of existing policies, elemental mercury could still be accidentally introduced into the wastewater system if the rubber ring guide containing the mercury was to be punctured or burst as a result of some unforeseen event. We presume that any open drains on the observation deck below the telescope would communicate directly or indirectly with the wastewater drainage system.

Furthermore, mercury spilled on the observing and basement floors could enter the opening where the earth ground wires enter the cinder layers. It should be noted that there is no specific antidote for mercury poisoning. A lethal dose is irreversible. Policies do not prevent accidents, nor do they prevent natural disasters.

- The Draft EA does not adequately address the hazardous materials used for this project, nor does it adequately address the existing and potentially significant and cumulative impacts this project might have on the cultural and environmental resources of Mauna Kea.

Wastewater Collection, Treatment and Disposal

Although Mauna Kea is sacred in its entirety, the summit holds a special status. The disposal of human waste and hazardous waste on the summit profanes the sanctity of the land.

> 'When Mauna Kea started up there, I asked Nelson Ho of the Sierra Club, when he goes up that mountain find out where all of the human waste is going. All the waste you folks have up there is going right into our sacred land, our sacred place, our sacred wahi pana..."
>
> Testimony by A untie Pe/e *Hanoa*
>
> "We derive a super sense of spirituality and enlightenment from this place (Mauna Kea) ... We also bury our highest born there."

Coordinator

'The Mountain is a burial site. There are many bones placed there."

Testimony by *Mr Ed Stevens*

"That whole Mountain is a cemetery."

Testimony *by* Auntie *Hanah Reeves*

Mauna Kea is a burial ground. Known burials exist there. The fact that no evidence of disturbance has been produced doesn't change the fact that it is a burial ground - the absence of evidence is not evidence of absence. **The thought of** human wastewater and toxins flowing over the bones of our Hawaiian ancestors is outrageous and is desecration of the highest order.

Because Mauna Kea summit resides in a Conservation **District, the** WMKO wastewater disposal system must be in compliance with the State Health Department regulations for this District. The Draft EA states "The WMKO wastewater disposal system has been approved by the State Department of Health." The State Wastewater regulations however, forbid any substances other than human and regular waste from entering the septic tank systems. State of Hawai'i Clean Water regulations require any project that is 5 acres or greater to obtain a National Pollutant Discharge Elimination System (NPDES) permit.

- Does your agency have a special permit to introduce hazardous substances into the wastewater system?

- Does your agency have a NPDES permit?

The Draft EA states "Wastewater enters the two-stage septic tank where bacteria digest bio-solids that settle to the bottom of the tank. The wastewater then flows from the septic tank into a 6-m (20ft.) deep seepage pit that drains into deep subsurface cinder."

- Could you define or describe this seepage pit? For instance, is this "pit" an open hole in the ground or a lined and contained vault?

In the event that any hazardous materials other than the "rinse-water" from the aluminizing process were to be introduced into the septic/seepage tank system, what emergency procedures have been established to deal with this scenario? For example, what would the procedures be if mercury were introduced into the system through the open drain system?

The high altitude and freezing conditions create special problems in systems that might, under normal circumstances, be fine.

- Have the sanitation systems been inspected since they were put in?

What is the date of the last sanitary system inspection, **and who conducted this** inspection and what technology was used? It is common in **many states for sanitation** systems to be inspected using **video inspection technology.**

Why was this method of waste disposal selected over complete removal of all waste materials from the Mountain?

• The Draft EA does not disclose the Emergency Response and Disaster Response Plans for this project. To date, we have no proof of compliance and have seen no documentation of inspection reports or evaluations by the pertinent agencies.

The Draft EA does not adequately address the Hydrology, Hazardous Materials and Solid Waste containment systems for the Project, which can, and do, significantly impact the traditional, cultural and environmental resources of Mauna Kea.

Summary

In summary, we believe that the Draft EA does not adequately address or mitigate the significant impacts that will be incurred by this project, for the following reasons:

• The Draft EA does not justify why further development is needed.

• The Draft EA Wekiu Bug Mitigation Plan is in direct violation of the traditional practice for species protection and could result in the extinction of the species.

• The Draft EA does not consider traditional rights to gather pristine water resources on the slopes and summit of Mauna Kea. Further, by diminishing the complexity of the Mountain's hydrology, the mitigation measures do not adequately address the project's significant and cumulative impacts and can not protect the resources that, by birthright, belong to the Native Hawaiian people.

• The Draft EA does not fully evaluate the hazardous materials that would be used by the project. The proposed mitigation measures for handling such materials are therefore inadequate and incomplete.

• The Draft EA does not adequately address the impact of solid waste disposal on traditionalbeliefs and sensibilities regarding the sacred nature of the Mountain and defecation as an act of desecration.

• The Draft EA does not address the cultural significance of **the landscape and** therefore the mitigation measures do not address the **significant impacts and** loss of cultural and traditional use of this landscape.

Conclusion

The ROOK I position has already been articulated regarding further development. However, in order for your agency to be in compliance with it's only laws a full Environmental Impact Statement (EIS) is required. We concur with the Office of Hawaiian Affairs, Hawai'i Island Burial Council, the Native Hawaiian Community and the general public that the impacts outlined in the assessment are significant and worthy of a more in-depth review. We also look forward to the opportunities for public input the EIS process affords.

We are in agreement with Mr Chaffee's statement "...how we proceed in the future is far more important then what has happened in the past." *(N.B. please see attached Mr. Chaffee's letter to Sierra Club dated - Feb. 13, 2001).*

If your agency wishes to move forward and not repeat the omissions, failures, and mistakes of the past, then you must embrace the true Spirit of Aloha, in which protocol demands that everyone take responsibility for your actions now and in the future.

The Environmental Impact Statement w ould be a first step and is an essential part of that future.

An EIS would pay minimum homage to the spirit of Aloha by providing a minimum standard of protection. It is our hope that the efforts at this juncture will be those that raise the -standard -of Aloha, by providing the **maximum protections for all** parties concerned.

Aloha,
On behalf of the Royal- Order of Kamehameha I Moku 0 Mamalahoa,

13

Kuauhau Mamo Naliko Markel

Kaka'olelo Ali'i Sir Robert McKeen Jr.

Ali'i Aimoku Ali'i Sir Paul Neves K.G.C.K.

a

Royal Order of Kamehameha I
Moku 0 Mamalahoa,
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The W. M. Keck Observatory
California Association for Research in Astronomy

Frederic H. Chaffee Director

Mr. Nelson Ho
Sierra Club, Big Island Chapter
32 Kahoa Street
Hilo HI 96720-2206

Dear Nelson:

February 13, 2001

Thank you for your letter of January 22, 200 1, regarding the proposed Outrigger Project and for expressing your concerns regarding "old business." Thank you, too, for meeting with Rolf- Peter Kudritzki and me on February 2 to discuss these concerns and to explore with us positive ways to move forward to avoid future distrust and misunderstandings.

As to the specifics of the two events about which you expressed concern:

1. Work stoppage during Keck I construction because bones were unearthed: I am perplexed regarding the date of purported work stoppage at the Keck I construction site as "sometime in 199 1," since the site work for Keck I began in August 1985, and was completed in October 1986. Similarly, Keck 11 site work wasn't begun until July 1992, and was completed in October of the same year. Thus, 1991 was a "quiet" construction year on the Keck site. Nevertheless, I had our archivist search our monthly records for the entire periods of Keck I and Keck II construction to see if there was reference to any work stoppage for any reason. The only reported stoppages were due to weather; nowhere did I find any reference to stoppages for any other reason.

I also called Jerry Smith, the then-Project Manager for the Keck Observatory, who retired in 1996, asking him if he remembered any report of bones or any other archaeologically significant artifacts, having been unearthed during the construction of the observatory, and he was emphatic that no such events were ever reported either orally or in writing.

In light of this investigation, I feel as certain as I can, given that the reported event occurred 10 years ago--5 years before my arrival in Hawaii-that no bones or other significant artifacts were unearthed during the construction of the Keck Observatory. I sincerely hope that this matter can be put firmly to rest.

2. Mercury spill in 1995: This report has more substance, as two mercury spills did occur during the cleaning and realuminization process for the Keck II secondary mirror which uses a mercury- filled "bladder" for its support in the telescope (a very standard support technique used at many observatories).

A. The mirror or must be removed from its support when it is realuminized, and when this was done on August 10, 1995, a minor spill (about a teaspoon) occurred from the bladder in the summit aluminizing room. According to the written report by our safety officer after the incident, "Approximately three quarters of a teaspoon were suctioned by aspirator into a plastic container and small residual amounts stuck to dust and debris were collected and disposed of in an appropriately marked container. A mercury absorbent paste was then spread over the entire spill area and beyond for about two feet, then removed. Mercury detectant powder was then spread and checked two days later: no residual traces of mercury were evident." As is our standard practice, the collected hazardous material was disposed of by Unitek Environmental of Honolulu.

B. On September 15, 1995, in the process of reinstalling the secondary mirror into the Keck II telescope, when the Hg bladder was receiving its final "top-off," at least 100 ml of Hg was spilled from the bladder vent tube onto the floor of the secondary mirror module. Cleanup, with crews fully suited and masked appropriately, took several days because of the many nooks and crannies in the module. In all, 100 ml were recovered, collected in an appropriate container, and disposed of by Unitek Environmental of Honolulu.

As a result of lessons learned during this episode, our Emergency Response Plan for dealing with mercury spills was carefully reviewed and rewritten. It is mandatory that all personnel handling the secondary mirror during future realuminizings be orally briefed on these procedures, read them carefully, and follow them to the letter.

I hope this information is helpful to you and the Sierra Club. Rest assured that we take these matters very seriously at the Observatory.

As I expressed to you in our meeting, I believe that how we proceed in the future is far more important than trying to reconstruct or pin blame for past events. Since the abovementioned events, the Directorships at both Keck and IFA have changed hands. As I also mentioned, I am a lifetime Sierra Club member, and Rolf Kudritzki's affiliation with the Green Party goes back many years. This means we both share, at a very deep level, a respect for and determination to protect the environment on Mauna Kea, both physical and cultural. The thoroughness with which we propose to protect both is, I hope, evident by the very stringent controls we put forth in the Federal Environmental Assessment for the Outrigger Telescopes Project.

Let us all pledge that the new millennium will be a time of collaboration between the Observatories, the Sierra Club, Native Hawaiians and all others concerned with the sanctity of Mauna Kea. I am determined that the Outrigger Telescopes Project will serve as a model of such a collaboration.

Aloha,

Fred

Frederic H. Chaffee

f-Peter Kudritzki

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STATE OF HAWAI'I
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'y 23, 2001

Richard I Howard
Senior Program Executive
Office of Space Science
NASA Headquarters
300 E Street, SW
Washington, D.C. 20546-0001

RE: Draft Environmental Assessment for the Outrigger Telescopes Project

Dear Dr. Howard:

Thank you for the opportunity to respond to the draft environmental assessment for the Outrigger Telescopes Project. The Office of Hawaiian Affairs is mandated to serve as the coordinating agency for the State in responding to actions affecting Native Hawaiians (Chapter 10, HRS). As such w have previously oommunicated with NASA on -November 16, 2000, as regards NASA's on and off site mitigation plans. Oar comments in this letter will address the cultural impacts of NASA's proposed Outrigger Telescopes Project and the shortcomings of NASA's work in preparing this EA thus far.

NASA's proposed environmental assessment provides ample evidence that this project will have a significant impact on traditional. and cultural properties, on a proposed National Historic Site, on the endangered wekiu bug, and on scarce groundwater resources to warrant the preparation of an EIS.

February 22, 2001

NASA's Proposed Mitigation Is Irrelevant to the Harms Caused to Traditional and Cultural Properties.

The EA documents the importance of Mauna Kea to Hawaiians (pp. 72-81), including legends of Mauna Kea, the importance of place names in Hawaiian culture, specific important landscape features, burial sites, and cultural sites (such as the adze quarry).

The following concerns regarding Mauna Kea are identified in the EA:
- Maintaining the sacred quality of the summit.
- Lack of respect on the part of the astronomy program for Native Hawaiian cultural practices.
- Increased public use of the summit.

However, none of the mitigation efforts proposed in this EA actually address the harms identified and provide little protection to Native Hawaiian traditional and cultural properties. Further, because NASA's mitigation plans are vague and ambiguous at best, they seemingly vest NASA with unfettered discretion as to how and when to mitigate and cause us to question the actual effect this project will have on the summit.

In particular:

> The current consultation process is inadequate to provide necessary community input for a mitigation plan.

NASA recommends consultation with "Native Hawaiian groups to identify methods of protecting traditional and cultural resources" (p. 105) yet thus far has at lowed only four Native Hawaiian groups to participate in its National Historic Preservation Act (NHPA) 106 consultations, even though many more seek inclusion. Furthermore, NASA has limited public comment at meetings held in Hawai'i (Feb 5, 7, 200 1) despite widespread interest in this project. Given the importance of the decisions to be rendered and the concerns voiced in the Native Hawaiian community about the manner in which consultations have occurred thus far, we question the efficacy of future consultations, NASA's ability to consult in good faith, and the relevancy of the proposed mitigation recommendations.

> NASA is not in compliance with the Mauna Kea Master Plan, even though NASA cites the Plan as part of its mitigation measures.

NASA claims it has taken m easures to reduce the potential area of development on Mauna Kea in response to community requests when, in fact, these measures are mandated as part of the Mauna Kea Master Plan. The Master Plan also limits future development on the mountain to no more than five telescopes yet the proposal by NASA is for six telescopes. if NASA is going to represent to the community that it is in

compliance with the Master Plan, then it should abide by all of the Master Plan's provisions, including the requirement of a limitation on future development.

NASA has failed to adequately consider alternative proposals.

NASA is required to review alternative proposals under the NEPA process. While NASA did review alternative venues for these telescopes, it did not consider fewer outriggers as an alternative.

NASA has failed to adequately evaluate the no-action alternative.

NASA did not adequately evaluate the no-action alternative in comparison to the significant impacts this project would cause to the. Native Hawaiian community. The importance of finding other life forms is never discussed and evaluated against the needs of life forms in Hawai'i, nor is the long-term cost of losing the ability to practice one's culture evaluated against the short-term loss of construction dollars. While NASA searches for other life forms in space, it is ironic that its search may extinguish an entire species of the wekiu bug here on earth.

NASA has failed to address this project's impact through its proposed on-site cultural mitigation recommendations.

The on-site mitigation proposals are of little value given that they seem to have been developed prior to an adequate assessment of this project's impacts. Assuming, for the sake of argument, that NASA has adequately defined the impacts of its proposal, OHA requests additional archaeological monitoring, the hiring of a cultural monitor to assure construction protocols are established and enforced consistent with the Native Hawaiian culture, the briefing of supervisory staff before construction begins on the significance of Mauna Kea to Native Hawaiians and their culture, more input into NASA's construction plans, and the ability to evaluate NASA's on site mitigation plan in a timely fashion and to suggest needed changes. (For a more detailed discussion of this item, please review our letter to NASA of Nov. 16, 2000).

NASA has failed to address this project's impact through its proposed off-site cultural mitigation recommendations.

The off-site mitigation suffers from the same fate as the on-site mitigation plan inasmuch as it, too, seems to have been developed without an adequate assessment of this project's impacts. The proposal is conceptual in nature and provides little substance to which the community can react. It also contains no nexus to the impacts it purports to mitigate. While education* maybe an appro atory mitigation, how does it mitigate

priate compens

for the loss of sacred viewplanes, or the ability to maintain traditional practices? 'Me vagueness of the off-site mitigation plan shows that much more community involvement is needed before adequate mitigation for the adverse cultural impact can be assessed by

the Native Hawaiian community or by NASA. (For a more detailed discussion of this item, please review our letter to NASA of Nov. 16, 2000).

NASA has failed to mitigate against the possible extinction of the Wekiu Bug.

OHA ques ions efficacy of using an untested mitigation procedure to protect the nearly extinct wekiu bug. Rather than adopt a speculative procedure which maybe of little or no value in protecting the wekiu bug, OHA suggests NASA relocate outrigger telescopes 2 and 3 or eliminate these outriggers altogether.

NASA7s has failed to address the sigificant impact of its. wastewater collection, treatment and disposal proposals on Native Hawaiian cultural practices and beliefs.

The EA proposes to dispose of wastewater at Pu'u Hau 'Oki cinder cone, a place believed by Native Hawaiians to be the residence of the goddess Poli'ahu and the sacred burial place of ancient Hawaiians. NASA's proposed disposal practice is disrespectful to the beliefs of Native Hawaiians, defiles Native Hawaiian ancestral remains, and demonstrates a callous disregard for Native Hawaiian beliefs. The EA should assess this disposal practice as a significant impact and mitigate its effects by transporting all wastes to an off-mountain waste repository.

NASA has failed to adequately assess impacts of this project on hydrology and water quality.

The EA suggests-there is no groundwater under Mauna Kea, yet local residents can trace streams and auwai flowing from the mountain, thus indicating the presence of -groundwater reserves underlying Mauna Kea. NASA must evaluate the effect of its proposed activities on these underground natural water reservoirs by accomplishing a more thorough hydrological and water quality review. Until NASA takes adequate steps to define those water resources jeopardized by this development, no adequate assessment or mitigation is possible.

NASA has failed to assess the cumulative effects of this project.

NASA has stated that this project will have no cumulative effects in relation to other projects on Mauna Kea because no funds are available for development over the next five years. This conclusion is shortsighted because of its limited -time frame and, is inconsistent with the Mauna Kea Master Plan, intended to guide development. on the ,mountain over the next 20 years. Until this project is evaluated within the context of -the Mauna Kea Master Plan, NASA has not addressed its role in articulating the cumulative effects of development on Mauna Kea. Furthermore, the site-specific cumulative impacts -of Keck I and Keck 11 on Puu Hau -Old have never been evaluated even though construction has been completed.

NASA must complete a full EIS under applicable environmental laws.

Based upon the known significant impacts of this project and the lack of adequate and relevant mitigation measures, OHA urges NASA to prepare a full EIS to discover and assess all possible impacts early in the planning process and to ensure the environmental review includes adequate community input. To do otherwise, is to circumvent the spirit of our environmental laws and to cause irreparable harm to a place sacred to Native Hawaiians.

The Ninth Circuit Court of Appeals recently observed that ". . . the relevant NEPA timing regulations, the plain language of the act, and applicable precedents All unequivocally require NEPA analysis to be undertaken early enough so that it can. serve practically as an important contribution to the decision-making process and will not be used to rationalize or justify decisions already made." Metcalf v. Daly 214 F.3d 1135,1142 (9th Cir. 2000) (quoting 40 C.F.R. § 1502.5) (explaining that caselaw and the CEQ regulations requirethat environmental analysis under NEPA "must be timely, and it must be taken objectively and in good faith, not as an exercise in form over substance, and not as a subterfuge designed to rationalize a decision already made"); see also Weslands Water
District v. U.S. Department of the Interior, 850 F. Supp. 1388 (E.D. Cal. 1994) (agency's -.alleged unavoidable conflict between the secrecy and timing of ESA consultation and NEPA's requirements did not excuse failure to prepare an EIS).

Under NEPA, an agency must prepare an EIS for all "major Federal actions significantly affecting the quality of the human environment .... 42 U.S.C. § 4332(2)(C). The regulations promulgated by Council on Environment Quality establish criteria for determining when a full EIS is
required: These criteria include:

* "Impacts that may be both beneficial and adverse. A significant impact may exist even if the Federal agency believes that on balance the effect will be beneficial," 40 C.F.R. § 1508.27(b)(1)

* "Unigue characteristics of the geographic are such as the proximity to historic or cultural resources ... or ecologically critical areas," id. § 1508.27(b)(3);

* "The degree to which the effects on the quality of the human environment are likely to be highly controversial," id. § 1508.27(b)(4);

* "The degree to which the possible effects on the human environment are highly uncertain or involve unique and unknown risks," id. § 1508.27(b)(5);

* "The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration," id. § 1508.27(b)(6);

* "Whether the action is related to other actions with individually insignificant but cumulatively significant impacts Significance exists if it is reasonable to anticipate at cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts," id. § 1508.27(b)(7);

* The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or
destruction of significant scientific, cultural or historical resources," id. § 1508.27(b)(8)

* "The degree to which the action may adversely affect -an endangered threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973, id. § 1508.27(b)(9); and

* Whether the action threatens a violation of... requirements imposed for the protection of the environment, id.1508.27(b)(10).

Given all that has been discussed in this letter and these criteria, there is no other reasonable conclusion - the impacts of this project (and the cumulative impacts of Keck I and 11) on sacred and important cultural resources are significant. See Colorado River Indian Tribes v. Marsh, 605 F. Supp. 1425, 1430 n. 3 (C.D. Cal. 1985) (EIS can be required based on impacts to cultural sites alone) quoting 42U.S.C. § 4331(b)(4)). (NEPA requires the federal government to "preserve important historic, cultural and national aspects of our national heritage"); 40 C.F.R. § 1508.8 ("'Effects' include ecological . . ., aesthetic, historical, cultural, economic, social or health. . .")

In addition, impacts on the *Wekiu* bug also provide an independent basis for significance. Blue Mountains Biodiversily Project v. Blackwood, 161 F.3d 1208, 1213-14 (9th Cir. 1998) (Where Forest Service's EA did not show that no significant impact on area's fish populations would result from proposed. action, an EIS was required): Foundation for North American Wild Sheep v. U.S. Dept. of Agriculture 681 F.2d 1172, 1180 (9th Cir. 1982) (impacts to sensitive -species, the bighorn sheep, a significance factor requiring preparation of EIS).

Conclusion.

An EIS is warranted 1 because this project will have significant impacts on traditional and cultural properties, on a proposed National Historic Site, on the endangered wekiu bug, and on scarce groundwater resources.

OHA need hot. . prove that significant environmental impacts will occur, only that the project may cause significant degradation. See Blue Mountains Biodiversity veristy Project v. Blackwood 161 F.3d 1208, 121-6 (9th Cir. 1998) ("An EIS is required ... whenever

If you have further questions, please call Pua Aiu, Policy Analyst at 594-193 1.

Sincerely,

Colin Kippen Jr

Colin Kippen, Jr.
Deputy Administrator, Hawaiian Rights Division

cc: BOT
Administrator

'substantial questions are raised as to whether a project may cause significant [environmental] degradation'") (quoting Idaho Sporting Congress v. Thomas, 137 F.3d 1146, 1149 (9th Cir. 1998), cert denied, Malheur Lumber Corp. v. Blue Mountains Biodiversity Project, 527 U.S. 1003 (1999); LaFlamme v. F.E.R.C., 852 F.2d 389, 397 (9th Cir. 1988) ("plaintiff need not show that significant effects will in fact occur;" an EIS is required "if substantial questions are raised as to whether a project . . . may cause significant degradation of some human environmental factor") (citation omitted); Blue Ocean Preservation Society v. Watkins, 767 F. Supp. 1518 (D. Haw. 1991) (same).

I Na Kapuna O Hawai`i Nei Regarding Draft Environmental Assessment for Outrigger Telescopes Project (December 2000)

April 10, 2001

Introduction

Hui Malama I Na Kupuna O Hawai`i Nei (Group Caring for the Ancestors of Hawai`i, "Hui Malama") was born in 1988 in response to the removal of over 1,100 ancestral Native Hawaiian remains from the sand dunes of Honokahua, on the island of Maui, prior to construction of the Ritz Carlton Hotel. Founded by Edward and Pualani Kanahele, the principal focus of Hui Malama is the care and protection of ancestral Native Hawaiians and funerary objects by returning iwi (bones) and moepu¯ (funerary objects) to their families, to replant them, and to provide perpetual care and protection for burial and reburial sites. Hui Malama members shall be well versed in ceremonial protocols relating to the treatment of ancestral remains, providing ceremonial reinternment services upon request, or as deemed necessary.

The secondary focus of Hui Malama is to seek the repatriation of sacred objects and cultural patrimony as part of an ongoing effort to assist with the renewal of traditional spiritual practices that recognize the need for the continued involvement of ancestors and ancestral deities in the daily lives of contemporary Native Hawaiians.

Furthermore, Hui Malama members shall teach their children the importance of caring for ancestral remains and the importance of the interdependence between the living and the dead for the purpose of insuring the protection of their bones and the perpetuation of the importance of the responsibility to malama i na kupuna.

The overall mission of Hui Malama is to restore and maintain the ancestral foundation of the Native Hawaiian people by assisting families to resume the historic responsibilities to care for the ancestors, to strengthen the sense of Hawaiian self-identity, and to perpetuate the Hawaiian race and culture.

Comments to Draft Environmental Assessment

Hui Malama understands that this draft environmental assessment (DEA) is different from the environmental assessment (EA) being prepared by the University of Hawai`i. Moreover, that the DEA is being prepared to support NASA's decision-making regarding whether to continue to fund the Outrigger Telescopes Project. Hui Malama therefore requests that it be sent the EA and allowed to comment on that document also. Due to the sacred nature of Mauna Kea, Hui Malama's ultimate recommendation with regard to the DEA and the EA is that a full blown environmental impact statement be prepared in order to properly assess the imperative impact to the cultural and spiritual resources of this important place.

Hui Malama understands that the two basic questions being asked in NASA's Origins Program is "where do we come from?" and "are we alone?" NASA in turn should understand that our oral history as recorded in chants in particular the Kumulipo provide Kanaka `O¯iwi (Native Hawaiians) with layers upon layers of answers to questions about our origins that we find more than satisfies our own curiosity as to where we come from--we come from po¯, from ao and from Ha¯loa. Given the current state of emergency that Kanaka `O¯iwi find ourselves in with challenges to our federal and state programs and our very existence as a result of the illegal taking of our sovereign authority and lack of recognition by the United States and other international partners, we are compelled to set aside the question whether we are alone as being irrelevant to our very survival.

Hui Malama is intrigued by the statement that, "NASA, however, will not take final action on this Outrigger Telescopes Project until the decision-making process under NEPA has been completed. It is anticipated that on-site construction and installation would begin in mid-2001." The DEA is dated December 2000 and construction is anticipated for mid-2001, merely seven months following the issuing of the DEA which does not afford sufficient time for a complete and comprehensive review which would lead to proper decision-making under NEPA. There is already a clear indication by the agency that an environmental impact statement is unnecessary and that the consultation period will be brief and Kanaka `O¯iwi concerns, no matter what they are, will be mitigated and if that is not possible, simply ignored. Hui Malama hopes this is not the case and an appropriate timetable is provided to fully assess all impacts.

The permanent nature of the proposed telescope structures is extremely troubling to Hui Malama. The existing Keck telescope structures and the disturbance it caused the `Aina and the people already degrades and undermines the sanctity of Mauna Kea. Keck serves the scientific interests of the world at the expense of the spiritual interests of Kanaka `O¯iwi for whom these islands were created for by our deities and for whom Mauna Kea holds an important place in our spiritual psyche. We are again reminded that as the indigenous but colonized people of the pae `Aina, our

scientific, economic or both.

Some may argue that further consideration must be given to alternative sites for the Outrigger Project. The problem for NASA of course is that Native people in other parts of the honua (planet) probably attach similar sacred importance to elevated areas that meet NASA's project requirements. We know that this is certainly true at Mt. Graham in Arizona. Another way to look at this situation is to question the true importance of the two questions whose answers are being sought by NASA if to do so would first require desecration to the fundamental beliefs of living Native people and an undermining of their ancestral values. Think interplanetary balanced by the impacts locally. If the former outweigh the latter, than maybe the question is not that important.

Contrary to what is stated on page 8, the on site construction, installation and operation of the Outrigger Telescopes will-- not may-- result in environmental impacts including negative cultural, spiritual and historic impacts that can only be mitigated by not conducting any further construction at Pu`u Hau `Oki and the summit region or any other part of Mauna Kea and more importantly, by removing the current Keck Telescope and related structures. Hui Malama strongly disagrees that mitigation measures would effectively address the impacts resulting in an acceptable project. We respectfully urge NASA to respect the cultural traditions of Ka¯naka `O¯iwi and refrain from funding this project.

With respect to archaeological sites, although it is true that extensive impacts from the construction of Keck I and Keck II reduced the probability of discovering burials during proposed on-site construction activities associated with the proposed Outrigger Telescopes, it must be accurately stated that what was really reduced was the probability of finding in situ burial sites. Experience has shown Hui Malama, that construction related activities can result in the destruction of burial sites such that what is discovered after the activities are fragments of iwi kapuna (ancestral remains) spread throughout the project area. This tragic result has occurred despite the presence of archaeological monitors which is only to say that the presence of such monitors is not in and of itself a complete guarantee that iwi kapuna will not be negatively impacted and therefore desecrated.

In addition, the DEA needs to be corrected in that only the complete absence of Hawaiian burials or the failure to construct can truly "prevent the inadvertent disturbance of remains." By its very nature, an inadvertent disturbance is just that--- accidental. The presence of a qualified archaeologist will not prevent a bulldozer blade from cutting into a burial, or an excavator from ripping through iwi kapuna. The monitoring archaeologist can only halt the work once the iwi are negatively impacted. If the project has multiple excavations occurring that outnumber the archaeological monitors, then the effectiveness of mitigating impacts are greatly reduced. Absent from this proposed mitigation, is the lack of Hawaiian cultural expertise. The monitoring archaeologist will not have a doctorate degree and more often than not will not have a master's degree in archaeology. Moreover, the archaeologist will not be knowledgeable in Hawaiian cultural values and practices relating to malama i na iwi kapuna (care of ancestral remains). Inherent in the western view of historic preservation is the misguided believe that the utilization of an archaeologist addresses not only archaeological needs but cultural needs as well. This is simply untrue. While many archaeologists over the years have become much more aware of and respectful to Hawaiian traditions, this is not an adequate substitute for cultural expertise.

Although Hui Malama is unable to certify the statement that the proposed project "would have no impact on known archaeological sites," we raise a much more important point. Pu`u Hau `Oki is part of a larger cultural landscape whose sacred nature is a sum total of the condition of all of its parts. Hence, the sacredness is undermined by the current activities at the site and the proposed Outrigger Project.

Hui Malama agrees with the State Historic Preservation Division (SHPD) findings relating to this area of Mauna Kea and the determination that the proposed project will result in "adverse effects." We respectfully disagree with SHPD that these adverse effects can be mitigated. The cultural expertise possessed by SHPD Culture and History staff is acknowledged. However, the perspective of practitioners is separate and distinct from that of knowledge and awareness of such practices. Hui Malama is comprised of cultural practitioners especially our Kumu Pualani Kanaka`ole Kanahele who has repeatedly stated that Mauna Kea must be left in her natural state. As stated above, the current existence of the Keck I and II telescopes atop Mauna Kea undermines the mana (spiritual essence) of this wahi ku¯puna. Therefore, any placement of additional structures only serves to further desecrate the mana of this sacred place.

There is a fundamental difference here which is somewhat systemic to the historic preservation process under federal law. The concerns Hui Malama raises herein are principally spiritual in nature. However, the proposed mitigation measures address only the physical realm and do not extend into the spiritual. Noise reduction, slope stabilization, prevention of accidental dispersal, etc. do not address the trauma and interference represented by the presence of a structure that is not intended to honor Mauna Kea, but instead seeks to have Mauna Kea serve it. The relationship is inverted and therefore from our perspective, subverted. Once again, the only effective mitigation measure to preserve the mana of Mauna Kea is not to proceed with the proposed project and to instead remove all existing structures off the mountain.

proposed project be answered on our sacred places. If the questions are that important to others, then part of the kuleana (responsibility) in seeking to answer those questions must be the responsibility to find a place that is suitable and does not offend fundamental spiritual beliefs of indigenous peoples like us–put the structures somewhere else.

In summary, Hui Malama urges NASA to adopt the no-action alternative for the reasons stated above.

Appendix L

To: Representatives of the National Aeronautics and Space Administration

From: Kealoha Pisciotta Hawai'i island Burial Council Member

RE: Section 106 of the National Historic Preservation Act.

DATE: Feburary 1, 2001

It is my understanding that the meeting to be held on February 1, 2000 at the Naniloa Hotel, at 9:00; with the National Aeronautics and Space Administration (NASA), Office of Hawaiian Affairs (OHA), the Royal Order of Kamehameha, the Department of Hawaiian Homelands (DHHL), the State Department of Land and Natural Resources and the Hawai'i Island Burial Council is a Section 106 Consultation pursuant to the National Historic Preservation Act (NHPA; 16 U.S.C subsec. 470D as amended January 11, 2001.

I would like the record to reflect that although the Hawai'i Island Burial Council is a consulting party to the NASA Section 106 process, the Burial Council is a state agency and therefore its must conduct business in compliance with the State sunshine laws. Furthermore the Council is a voting body and it's positions are made collectively. It should be noted here, that Kealoha Pisciotta (Hilo representative) is present only and that the full Council will not be present at these proceeding. Therefore anything resulting from these proceeding cannot be construed to be the result of the Section 106 consultative process.

It is recommended that NASA contact the Council in order to schedule a Section 106 hearing with the full Council and the public a soon as possible.

Aloha and Mahalo for your time,

Kealoha Pisciotta
Hawai'i Island Burial Council

Appendix M-N

DANIEL K. INOUYE
HAWAII

APPROPRIATIONS
Subcommittee on Defense

COMMERCE, SCIENCE, AND TRANSPORTATION
Subcommittee on Surface Transportation
and Merchant Marine

COMMITTEE ON INDIAN AFFAIRS

DEMOCRATIC STEERING COMMITTEE

COMMITTEE ON RULES AND ADMINISTRATION

United States Senate
SUITE 722, HART SENATE OFFICE BUILDING
WASHINGTON, DC 20510-1102
(202) 224-3934
FAX (202) 224-6747

PRINCE KUHIO FEDERAL BUILDING
ROOM 7-212, 300 ALA MOANA BOULEVARD
HONOLULU, HI 96850-4975
(808) 541-2542
FAX (808) 541-2549

101 AUPUNI STREET, NO. 205
HILO, HI 96720
(808) 935-0844
FAX (808) 961-5163

March 23, 2001

Mr. Daniel Goldin
Administrator
National Aeronautics and Space Administration
300 E Street, S.W., Room 9F44
Washington, D.C. 20546

Dear Administrator Goldin:

I am writing with regard to the Section 106 Consultation for the National Aeronautics and Space Administration (-"NASA) Keck Outrigger Project atop Mauna Kea. I am most concerned about the tone, exclusivity and tenuous status of the process.

As you well know, Section 106 of the National Historic Preservation Act requires federal agencies to consider the effects of their activities on historical and cultural sites. The law requires consultation, and if it is determined that adverse effects will occur, mitigation is called for to resolve that which would be deemed adverse. As part of the process, NASA is required to enter into Memorandums of Agreement with the affected cultural entities. NASA implied to the Office of -Mauna Kea Management that Memorandums of Agreements are not necessary for the project to proceed.

The Keck Outrigger Project has come on the heels of the approval of the Mauna Kea Master Plan by the University of Hawaii Board of Regents. This was an emotional, heartfelt and difficult process. I was asked to participate by convening, an ad hoe group of respected native Hawaiians, Ahahui Ku -Mauna, and to encourage dialogue between these Hawaiian cultural and community leaders. and the University of Hawaii administration and astronomy community. Some of the Ahahui Ku Mauna members were unfairly criticized and even considered "sellouts" by members of the Hawaiian community. I. however, owe them a debt of gratitude, as do the leadership of the University of Hawaii Institute of Astronomy and astronomical scientific community, for their willingness to step forward to discuss many sensitive issues and then work in good faith to resolve them.

The approved Master Plan includes resolutions to restore the people's trust in the management of Mauna Kea. The Master Plan clearly states that the management of Mauna Kea be based on the Big Island of Hawai'i. The Chancellor of the University of Hawai'i at, Hilo through the Office of Mauna Kea Management, Mauna Kea Management Board and Kahn Ku. Mauna is tasked to manage Mauna Kea..'

That being said, I must tell you that the conduct of the NASA officials and means utilized to select the native Hawaiian entities that would be consulted have left much to be desired. For example, two entities that have been a part of the ongoing Mauna Kea discussion - Ahahui Ku Mauna and the Office of Mauna Kea Management - were left out and not even invited into the consultation process. I found that omission insulting.

Another example relates to NASA's dealing with a longstanding and respected organization, The Royal Order. of Kamehameha of which I am an honorary member. This organization is based on the rich history of the Hawaiian monarchy. It carries out and keeps alive many of the cultural protocols of centuries gone by. However, when they arrived at the Section 106 consultation meeting, their admittance was limited to three. The Royal Order asked for admittance of its leadership, or in the alternative, for a separate meeting. The first request was denied, and I do not believe the alternative was ever acted upon. While NASA is not technically required to do so, such failure reinforces the belief among many native Hawaiian groups that the federal government, and in this case, NASA, is insincere about their cultural concerns, and not interested in making amends and developing long lasting relationships based on mutual respect.

To ensure. myself that the sentiments and viewpoints are not merely that of a small minority, I asked to review the comments of a variety of established agencies including the Hawaii State Department of Land and Natural Resources, the Office of Hawaiian Affairs, and the Office of Mauna Kea Management. All found the Section 106 process and the resulting mitigation measures insufficient.

On this basis, I most, respectfully ask for your review of the process to date and for your. consideration for continued discussions that is more respectful of the native people and their cultural issues before NASA moves forward. It will go a long way in maintaining a an astronomical research presence on the island of Hawaii. Thank you for your attention to this most important and sensitive issue. I look forward to hearing from you.

Aloha,

DANIEL K. INOUYE
United States Senator

DKI:jsd
Enclosure

To: Mr. Colin Kippen
Deputy Administrator,
Office of Hawaiian Affairs
711 Kapi'olani Blvd. Suite 500
Honolulu, Hawai'i 96813
Ph: (808) 594-1974

From: Ali'i Aimoku, Ali'i Sir Paul K. Neves
Royal Order of Kamehameha I -
Moku 0 Mamalahoa - Helu'Elua
1162 Kalanianaole Ave.
Hilo Hawai'i 96720
Ph: (808) 938-8189
Fx: (808) 935-3865
Email: kbaybayan@aol.com or kealoha@aloha.net

Re: National Historic Preservation Act-Section 106 Process

Date: 20 April, 2001

Aloha Colin,

The Royal Order of Kamehameha I is in receipt of two letters from the Senior Senator Dan Inouye (N.B. Please see attached letters from the Senator); where he raises some concerns that Native Hawaiians are not being treated properly by the National Aeronautics and Space Administration (NASA) in the ongoing Section 106 Consultation process pursuant to the National Historic Preservation Act (NHPA). His letters also state that he has formed an "ad hoc group", and that this group should be included in the current Section 106 Consultation process with other Native Hawaiian Organizations.

The Senator's letters have raised concerns for some of the Native Hawaiian Organizations currently engaged in the Section 106 process with NASA. We are hoping the Office of Hawaiian Affairs (OHA) could provide some guidance and clarification regarding our concerns. Our concerns are as follows: -

1.) Senator Inouye appears to be proposing that the "ad hoc" group he formed known as the 'Ahahui Ku Mauna is a Native Hawaiian Organization pursuant to NHPA.

2.) Senator Inouye appears to be proposing that the Office of Mauna Kea Management (OMKM) have equal standing to a Native Hawaiian Organizations pursuant to NHPA.

3.) Senator Inouye appears to be proposing that the said 'ad hoc' group he formed to be "advisory" to the University President also has standing to, participate in the Section 106 Consultation process pursuant to NHPA.

Regarding our first concern, the 'Ahahui Ku Mauna group, was created by Senator Inouye to "work with the astronomy people in resolving problematic issues of the proposed Mauna Kea Master Plan." (N.B. Please see attached correspondence from 'Ahahui Ku Mauna to NASA). the 'Ahahui Ku Mauna was formed after the original Mauna Kea Advisory Committee, also formed by the Senator, voted against the Mauna Kea Master Plan. The majority of the membership of the 'Ahahui Ku Mauna group were comprised of members of the original Mauna Kea Advisory Committee. The Senator recognizes the 'Ahahui Ku Mauna group as an "ad hoc group" (N.B. please see attached letters from the Senator) to address the concerns regarding the Mauna Kea Master plan.

the 'Ahahui Ku Mauna was created by the Senator to work with the Astronomy community, and they have in the past stated publicly that they operate in an advisory capacity to the University of Hawai'i President only. Although many members of 'Ahahui Ku Mauna are from the Hawaiian community, this group did not conduct public hearings nor receive testimony from the people of the community. In fact some of the members of the community were denied access to their meetings.

To add further confusion to the process, most of the members of the 'Ahahui Ku Mauna were simply re-appointed by the University President and Board of Regents to become part of the Office of Mauna Kea Management (OMKM), and were first called the "Kahu Kupuna Advisory" group. They have since been renamed "Kahu Ku Mauna". 'Ahuhui Ku Mauna is the group referred to in the Senators letter. The spokesman for the Ahahui Ku Mauna, Mr. Ed Stevens sits on both the Office of Mauna Kea Management "Kahu Ku Mauna" and the 'Ahahui Ku Mauna Group (the group seeking consultative status in the Section 106 process).

We are not sure that any group formed by a U.S. Senator to advise a University President should necessarily be considered a Native Hawaiian Organization as defined by the NHPA. Furthermore we are concerned that if this is true, it could set a negative precedent.

We recognize the fact that the NHPA is vague in defining a Native Hawaiian Organization (NHPA Section 301 - Definitions), or more specifically how a Native Hawaiian Organization is created, however, it does describe the purpose an organization representing Native Hawaiians should at least subscribe to.

A Native Hawaiian Organization should "represent the interests of Native Hawaiians", have "...as a primary and stated purpose the provision of services to Native Hawaiians"; or be able to provide "-demonstrated expertise in aspects of historic reservation that are culturally significant to Native Hawaiians".

Regarding our second concern over the inclusion of the Office of Mauna Kea Management suggested by Senator Inouye. We believe that the spirit and legislative intent of the NHPA-Section 106 consultation process is to identify the injured group,

who, in this case, are the Native Hawaiian people. and to begin to mitigate the harm as best a possible.

The NHPA law requires consultation with Native Hawaiian Organizations. This requirement is in place to ensure that federal agencies do, in fact, take into account their
undertakings on traditional, cultural and historic properties of the Native peoples of the America.

In this case, these lands are our sacred, cultural, traditional, and historic properties. Mauna Kea is comprised, in its entirety, of ceded lands. The Native Hawaiian peoples, therefore, are the right-holders to these lands. These lands have been occupied and desecrated by the University of Hawai'i for over 30 years now.

Although we understand that agencies that have a stake in the lands in question or local governments that retain certain responsibilities on these lands should be informed and kept abreast of on-going consultations, we ask however, do the stakeholders have the same standing as the right-holders under the NHPA? We believe that the NHPA law does make a distinction between the two parties. Since the law requires federal agencies to consult with Native Hawaiians but does not necessarily require the federal agency to consult with the stakeholders. This seems to imply that Native Hawaiian Organizations have a higher precedent than do stakeholders.

Is it reasonable, to claim that the OMKM should have equal standing as OHA, the Royal Order, Mauna Kea Anaina Hou or any other Native Hawaiian group? We do not believe so. Nor do we believe that, any group(s) formed through an appointment process by a U.S. Senator or the University of Hawai'i could be construed to represent the true interests of the Native Hawaiian people. Even if they do fit all of the criteria, pursuant to NHPA it could still be said that they have a conflict of interest.

Regarding our third concern, which questions the standing of an "advisory group" under NHPA. It should be noted that the 'Aha Ku Mauna was created to be advisory to the University President, and therefore is advisory to a non-Hawaiian agency. If this is true than, even if the 'Ahahui Ku Mauna advisory group did fit all of the criteria for a Native Hawaiian Organization, the final outcome of any recommendations made by the group still rests with the University President. Therefore. is the University being allowed to be represented twice in the Section 106 process pursuant to NHPA? The OMKM is formed by the University President and the University Board of Regents, and the 'Ahahui Ku Mauna although formed by the Senator are advisory to the President of the University.

Please understand that we are simply asking the question, we do not suspect that the Senator or anyone else is not acting in good faith, however, if the outcome is to have integrity then so also must the process. The Senior Senator, in his attempt to insure inclusion might not have seen things as we do, We are confident that the Senator, aware of all of the assaults being issued against our people (Rice et al), is aware that any negative precedent set to diminish our rights on a federal level could only feed the

fire for our adversaries. We hope that you can help us to shed some light on this subject and perhaps help us to better understand our standing as Native Hawaiians within the framework of the National Historic Preservation Act.

Aloha, we look forward to hearing from you on this most important issue and we thank you very much for your time.

Aloha on Behalf of the Royal order of Kamehameha I Moku 0 Mamalahoa, signed by:

Kuauhau Mamo Naliko Markel

Kaka'olelo Ali'i Sir Robert McKeen Jr.

Ali'I Aimoku Ali'I Sir Paul K. Neves K.G.C.K.

Aloha on behalf of the Mauna Kea Anaina Hou, signed by:

Kealoha Pisciotta - MKAH

Keomailani von Gogh - MKAH

Appendix O-P

To: Gary Gill
Deputy Director
Department of Health Administration
1250 Punch Bowl Street
Honolulu Hawai'i 96813

From: Kealoha Pisciotta
Hawai'i Island Burial Council/Mauna Kea Anaina Hou
230 Lyman Ave.
Hilo, Hawai'i 96720
(808) 934-7668
kealohap@aloha.net

Date: 24 April 2001

RE: The National Aeronautics and Space Administration Draft Environmental Assessment for the Outrigger Telescopes Project

Aloha Gary,

Enclosed you will find the Royal Order of Kamehameha I/Mauna Kea Anaina Hou, Office of Hawaiian Affairs and the Hawai'i Island Burial Council's positions On the National Aeronautics and space Administration (NASA) Draft Environmental Assessment for the Outrigger Telescope Project proposed for Mauna Kea. Also included is a recent L.A. Times article for your review and record.

I am a member of both the Hawai'i Island Burial Council and the Mauna Kea Anaina Hou.

As you may know the Royal Order of Kamehameha, Office of Hawaiian Affairs and the Hawai'i Island Burial Council are currently engaged in the Section 106 Consultations pursuant to the National Historic Preservation Act with the NASA.

The enclosed information includes information regarding the Wekiu bug mitigation plans proposed by NASA and sections on the hydrology, hazardous materials and solid waste containment systems that we have particular concerns over. In particular the use of large amounts of elemental mercury used by the observatories on Mauna Kea.

The Hawaiian Community has battled with this issue of further development for years now. This is a very volatile issue, and the University of Hawai'i's Master Plan did NOT receive support from the broader community during its passage nor does it have the support from the larger community now.

The Hawaiian people are not arguing against astronomy, but rather development Withobtut proper controls to protect the cultural and environmental resources of Mauna Kea, and further to question how much more development the mountain ban actually accommodate. The Section 106 Consultations that are currently underway are actually the first in the history of development on Mauna Kea since 1968. The majority of construction of the observatories was completed without any environmental review. Almost all of the observatories were built riding on the 1983 Master Plan/draft Environmental Impact Statement (EIS), even when federal monies were spent. We believe that at a minimum a federal EIS should be conducted.

We have been in contact with Mr. Leslie Au in the Hazardous Evaluation department. He provided us with useful information', and had agreed to look further into the situation of the mercury and other hazardous material and any precautions used by the observatories regarding these materials. I have not heard back from him yet. I understand that you all are very busy.

I hope, you find this information useful, and can help us to work together, to protect, our 'aina for all the future generations of Hawai'i Please feel free to contact me if you have any questions. We understand that you are very busy and we appreciate your time and any assistance or guidance you can provide.

Kealoha Pisciotta

To: Jeyan Phirugnanam
Office of Environmental Quality Control
235 South Beretania Street Suite 702
Honolulu, Hawai'i 96813
(808) 586-4185

From: Kealoha Pisciotta
Hawai'i Island Burial Council
230 Lyman Ave.
Hilo, Hawai'i 96720
(808) 934-7668
kealoha@aloha.net net

Date: 25 April 2001

RE: Mauna Kea, Hawai'i

Aloha Jeyan,

Enclosed you will find the Royal Order of Kamehameha I/Mauna Kea Anaina Hou, Off of Hawaiian Affairs and the Hawai'i Island Burial Council positions on the NASA Draft Environmental Assessment for the Outrigger Telescopes Project. Also included is a L.A. Times article recently published for your review and record. Per our discussion you will find information regarding the Wekiu bug mitigation plans proposed by NASA and sections on the hydrology, hazardous materials and solid waste containment systems that we have particular concerns over. We hope you find this information helpful. I would like to thank you for all of your assistance and your time. If you have any questions please feel free to contact me.

I have also provided copies of the materials for Lesile Au. Mahalo again.

Aloha ame Malama Pono.

Kealoha Pisciotta

Appendix Q

GENERAL LEASE NO. S-4191

THIS INDENTURE OF LEASE, made this 24th day of June, 1968, by and between the STATE OF HAWAII, by its Board of Land and Natural Resources, pursuant to the provisions of Section 103A-90(b), Revised Laws of Hawaii 1955, as amended, hereinafter referred to as the "LESSOR", and the UNIVERSITY OF HAWAII, a body corporate, whose post office address is 2444 Dole Street, Honolulu, City and County of Honolulu, State of Hawaii, hereinafter referred to as the "LESSEE",

WITNESSETH: THAT:

FOR and in consideration of the mutual promises and agreements contained herein, the Lessor does hereby demise and lease unto the said Lessee and the said Lessee does hereby rent and lease from the Lessor, all of that certain parcel of land situate at Kaohe, Hamakua, County and Island of Hawaii, State of Hawaii, and more particularly described in Exhibit "A", hereto attached and made a part hereof.

TO HAVE AND TO HOLD, all and singular the said premises, herein mentioned and described, unto the said Lessee, for and during the term of sixty-five (65) years, to commence from the 1st day of January, 1966, and to terminate on the 31st day of December, 2031.

DEPARTMENT OF LAND AND NATURAL RESOURCES
HONOLULU, HAWAII

RESERVING UNTO THE LESSOR THE FOLLOWING:

1. Water Rights. All surface and ground waters appurtenant to the demised premises, together with the right to enter and to capture, divert or impound water; provided, that the Lessor shall exercise such rights in such manner as not to interfere unreasonably with the Lessee's use of the demised premises; provided, further, that the Lessee shall have the right to use the waters of Lake Waiau for any purpose necessary or incidental to the use permitted by this lease on the following conditions:

a. No drilling or disturbance of Lake Waiau's bottom, banks or areas adjacent thereto shall be permitted;

b. No activity shall be permitted which will result in the pollution of the waters of Lake Waiau;

c. Lessee shall not take or divert any of the waters arising from springs which furnish the water supply for Pohakuloa, and no alterations to said springs shall be made by Lessee.

2. Access. All rights to cross the demised premises for inspection or for any government purposes.

3. Hunting and Recreation Rights. All hunting and recreation rights on the demised lands, to be implemented pursuant to rules and regulations issued by said Board in discharging its fish and game or state parks responsibilities; provided, however, that such hunting and recreation activities shall be coordinated with the activities of the Lessee on the demised lands; and provided, further, that such hunting and recreation activities shall be limited to day-light hours only.

4. Right to use Demised Lands. The right for itself, and its successors, lessees, grantees and permittees, to use any portion of the lands demised and the right to grant to others rights and privileges affecting said land; provided, however, that, except as otherwise provided herein, no such use shall be permitted or rights and privileges granted affecting said lands, except upon mutual determination by the parties hereto that such use or grant will not unreasonably interfere with the Lessee's use of the demised premises; provided, further, that such agreement shall not be arbitrarily or capriciously withheld.

THE LESSEE, IN CONSIDERATION OF THE PREMISES, COVENANTS WITH THE LESSOR AS FOLLOWS:

1. Surrender. The Lessee shall, at the expiration or sooner termination of this lease, peaceably and quietly surrender and deliver possession of the demised premises to the Lessor in good order and condition, reasonable wear and tear excepted.

2. Maintenance of the Premises. The Lessee shall keep the demised premises and improvements in a clean, sanitary and orderly condition.

3. Waste. The Lessee shall not make, permit or suffer, any waste, strip, spoil, nuisance or unlawful, improper or offensive use of the demised premises.

4. Specified Use. The land hereby leased shall be used by the Lessee as a scientific complex, including without limitation thereof an observatory, and as a scientific reserve being more specifically a buffer zone to prevent the intrusion of activities inimical to said scientific complex.

Activities inimical to said scientific complex shall include light and dust interference to observatory operation

~~during hours of darkness~~ and certain types of electric or electronic installation on the demised lands, but shall not necessarily be limited to the foregoing.

5. Assignments. The Lessee shall not sublease, sub-rent, assign or transfer this lease or any rights thereunder without the prior written approval of the Board of Land and Natural Resources.

6. Improvements. The Lessee shall have the right during the existence of this lease to construct and erect buildings, structures and other improvements upon the demised premises; provided, that plans for construction and plot plans of improvements shall be submitted to the Chairman of the Board of Land and Natural Resources for review and approval prior to commencement of construction. The improvements shall be and remain the property of the Lessee, and shall be removed or disposed of by the Lessee at the expiration or sooner termination of this lease; provided, that with the approval of the Chairman such improvements may be abandoned in place. The Lessee shall, during the term of this lease, properly maintain, repair and keep all improvements in good condition.

7. Termination by the Lessee. The Lessee may terminate this lease at any time by giving thirty (30) days' notice in writing to the Lessor.

8. Termination by the Lessor. In the event that (1) the Lessee fails to comply with any of the terms and conditions of this lease, or (2) the lessee abandons or fails to use the demised lands for the use specified under paragraph 4 of these covenants for a period of two years, the Lessor may terminate this lease by giving six months' notice in writing to the Lessee.

9. Non-Discrimination. The Lessee covenants that the use and enjoyment of the premises shall not be in support of any

policy which discriminates against anyone based upon race, creed, color or national origin.

10. General Liability. The Lessee shall at all times, with respect to the demised premises, use due care for safety, and the Lessee shall be liable for any loss, liability, claim or demand for property damage, personal injury or death arising out of any injury, death or damage on the demised premises caused by or resulting from any negligent activities, operations or omissions of the Lessee on or in connection with the demised premises, subject to the laws of the State of Hawaii governing such liability.

11. Laws, Rules and Regulations, etc. The Lessee shall observe and comply with Regulation 4 of the Department of Land and Natural Resources and with all other laws, ordinances, rules and regulations of the federal, state, municipal or county governments affecting the demised lands or improvements.

12. Objects of Antiquity. The Lessee shall not appropriate, damage, remove, excavate, disfigure, deface or destroy any object of antiquity, prehistoric ruin or monument of historical value.

13. Undesirable Plants. In order to prevent the introduction of undesirable plant species in the area, the Lessee shall not plant any trees, shrubs, flowers or other plants in the leased area except those approved for such planting by the Chairman.

IN WITNESS WHEREOF, the STATE OF HAWAII, by its Board of Land and Natural Resources, has caused the seal of the Department of Land and Natural Resources to be hereunto affixed and these presents to be duly executed this 27th

day of June, 1968, and the UNIVERSITY OF HAWAII, by its Acting Secretary and VP for Business Affairs has caused these presents to be duly executed this 26th day of June, 1968, effective as of the day and year first above written.

STATE OF HAWAII

By: _____
ACTING Chairman and Member
Board of Land and
Natural Resources

And By: _____
Member
Board of Land and
Natural Resources

UNIVERSITY OF HAWAII

By: _____
Its Acting President

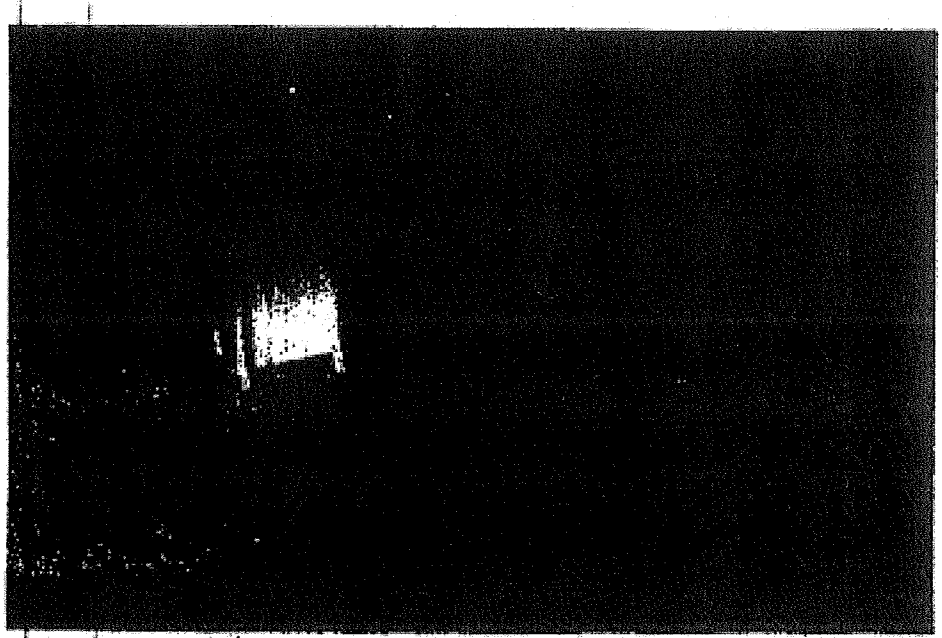
And By: _____
Its Vice President for Business Affairs

APPROVED AS TO FORM:

_____
Deputy Attorney General
Dated: 5/8/68

mm
Proofed by:

Appendix R



The summit of Mauna Kea, home to 13 telescope domes, two of which are shown here, is considered by astronomers to be one of the best places on Earth to study the stars.

Astronomers, in Search of the Best Views, Confront History and Politics in Hawaii

Should science, money, or ethnic heritage dictate who controls a mountain?

BY JEFFREY SELINGO

MAUNA KEA, HAWAII

THE BUMPY DIRT ROAD to the peak of Mauna Kea is not for the faint of heart. From a dormitory and lab facility at 9,200 feet, the switchback climbs another 4,300 feet into thinning air to the summit of the dormant volcano.

Four-wheel-drive vehicles make this trek nearly 600 times every week. About a third of the trips are made by recreation buffs—hikers, hunters, nature lovers, and even skiers. On the ascent, they pass dozens of upright stones marking shrines and burial sites built by Native Hawaiians, who view Mauna Kea as sacred—the closest place to heaven in the Pacific Islands.

Just before visitors reach the summit's Mars-like surface, the silver and white telescope domes—13 in all—come into view. The summit, high above the clouds, is surrounded by dark skies, making this one of the best places on Earth to study the stars.

KEEPING THE PEACE

> **"If we have to give up something that would mean we're not going to be the best in the world, then we might as well give up everything."**

over how best to use this rocky summit still run as high as its peak.

The politically charged debate has less to do with science than with a growing Native Hawaiian movement that has tied access to the summit to several other issues, including a return of ceded lands and free tuition at the University of Hawaii.

The intensity of the dispute—some Hawaiians want a moratorium on new telescopes and removal of existing ones—has surprised and angered many scientists.

"As astronomers, we can't just think ex-

tory, or else you're no longer the best in the world."

But Native Hawaiians see Mauna Kea as their land. The science reserve is among 1.8 million acres that belonged to Hawaii's queen before the United States deposed the monarchy in 1893. Hawaiians have been trying to get the land back since the early 1990's, when the Clinton administration and Congress called the overthrow illegal and offered their apologies.

"Some just look up there and see a mountain," says Ira S. Rohter, an associate professor of political science at the University of Hawaii-Manoa, who specializes in Hawaii politics. "But for Hawaiians, it's like building a McDonald's at Stonehenge."

SCIENTIFIC BREAKTHROUGHS

Astronomers first discovered the advantages of viewing the sky from Mauna Kea in the 1960's. Today, the summit is home to the densest concentration of telescopes in the world, including the two largest.

scientists by showing that the universe is expanding at an accelerating rate.

What most upsets many Hawaiians is that the state receives very little direct compensation from astronomers who use the mountain. The organizations and governments from around the world that own and operate the telescopes made a one-time contribution to improve Mauna Kea's infrastructure when they constructed the domes. They also share in the annual operating costs of maintaining the roadway and the mid-level housing facility.

Although the University of Hawaii receives free viewing time, which Mr. Kudritzki estimates is worth hundreds of thousands of dollars each year, it only takes in a nominal $1 per year rental fee. Native Hawaiians say the university is wasting a valuable resource.

"We don't get a penny from Mauna Kea and it's our land," says Lilikala Kame'eleihiwa, director of the Center for Hawaiian Studies at the University of Hawaii-Manoa. "We're a culture of sharing, but we keep giving, giving, giving, and not getting anything back."

STUDENT CAMPAIGN

The rights of Native Hawaiian students have been a point of contention at the university in recent years. The students have waged a campaign for free tuition, arguing that they should be compensated for the land the federal government seized since all or parts of four campuses sit on ceded land.

The university already awards partial and full-tuition waivers to Native Hawaiian students, but only to a small fraction of them. In 1999-2000, the university system spent about $383,000 on waivers to 355 such students, about 6 percent of the Native Hawaiian student population. University leaders say they can't afford to extend free tuition to all Native Hawaiian students, who make up about 14 percent of the student body. State financial support for the 10-campus system has fallen by $35-million—or about 11 percent—since 1993.

That has some Hawaiians suggesting that the university charge astronomers for access to Mauna Kea and use the funds to protect the mountain and extend free tuition to all Hawaiians. (Some Native Hawaiians don't view that as a long-term solution: They'd like to have the observatories torn down when the university's agreement with the state to manage the summit ends in 2033.)

"If this is the best observatory in the world, I don't understand why we're not charging people to use it," says Pi'ilani Smith, a former student-government president at the Manoa campus. "We don't have any money, and we could be making millions off that mountain."

Kenneth P. Mortimer, the university system's outgoing president, says that the debate over free tuition should be decided on its own merits and not linked to Mauna Kea. The mountain observatories, he says, "define this university. Their future should not be caught up in all these other side issues."

Astronomers here fear that if the univer-

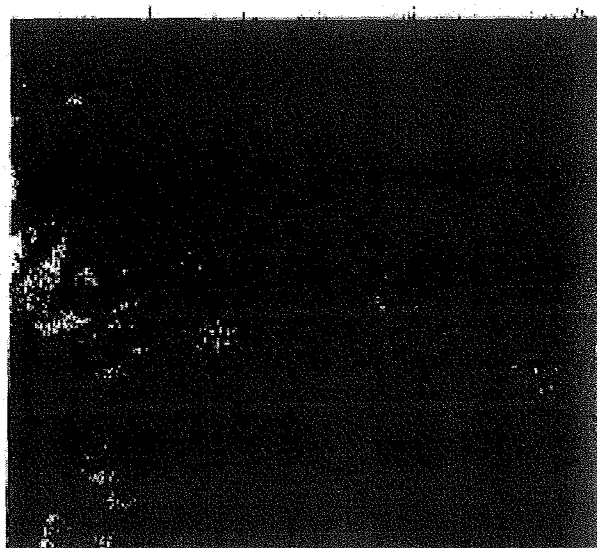
look elsewhere to build the next generation of telescopes. That could jeopardize federal grants to the university and free viewing time, astronomers say.

The master plan for Mauna Kea approved by the regents last year allows three new telescopes, not five as originally proposed by scientists. The compromise was the result of nearly two years of intense debate.

A FAILED ATTEMPT

The first attempt at plotting the future of Mauna Kea, in 1995, was considered a failure by Native Hawaiians who said the proposals were insensitive to their needs. It

Rolf-Peter Kudritzki, of the University of Hawaii's Institute for Astronomy: "You must keep boundaries so that you can operate an observatory, or else you're no longer the best in the world."



Pi'ilani Smith, former student-government president at Manoa: "We don't have any money, and we could be making millions off that mountain."

came on the heels of a scathing audit by the state that accused the university of neglecting the mountain's historical and cultural resources, and criticized astronomers, tourists, and telescope construction crews for leaving behind trash and debris. The state auditor suggested that the university had more interest in its research programs than in stewardship of the mountain.

In 1999, a second group was brought together by U.S. Sen. Daniel K. Inouye, a Democrat, to build on the suggestions of the first panel. The group included both Hawaiians and astronomers, and they quickly broke into two camps as they struggled to reach a consensus. Public hearings on the proposals dragged on, including a five-hour session just before the regents agreed on the final plan.

That document took day-to-day management of the mountain away from the university's astronomy institute at Manoa, and handed it to the University of Hawaii at Hilo, located near the base of Mauna Kea. A board that includes Hawaiian representation oversees the new office, which will hire rangers to protect cultural sites at the summit and develop educational and environmental programs. The state Legislature has allocated $1-million for the office next year.

"It's going to be tough, but not impossible," Rose Tseng, chancellor of the university's Hilo campus, says of the new board's task in balancing the needs of all the mountain's users. "Hawaiians really respect the stars, and astronomers are finally looking to the past as well as the future. So I'm hopeful."

CONTINUING DEBATE

Indeed, the contentious debate appears to be far from over. Even though the management plan calls for three new telescopes, each project must be separately approved. Several scientists are worried that the political concerns could eventually

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the governor hopes t
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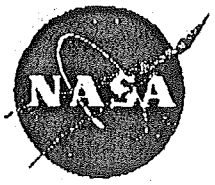
is a solid industry

"We don't get a penny from Mauna Kea and it's our land.
We're a culture of sharing, but we keep giving, giving, giving.

Appendix S-U

National Aeronautics and
Space Administration
Headquarters
Washington, DC 20546-0001



AUG 28 1997

L:ATW:mtg:L97-581f

The Honorable Patsy T. Mink
House of Representatives
Washington, DC 20515

Dear Ms. Mink:

Thank you for your letter of June 27, 1997, regarding NASA's planned $50 million upgrade of the Keck Telescopes on the Mauna Kea Science Reserve.

This funding will be used for two purposes: (1) to link together the existing Keck Telescopes creating a highly sophisticated interferometer system, which will greatly enhance our ability to detect and characterize super-Jupiter sized planets and survey 500 stars for the presence of planets as small as Uranus; and, (2) to construct four 2-meter outrigger telescopes, which will enable us to measure the emission from dust orbiting nearby stars and image the disks around young stars out of which planets are forming.

Please be assured that NASA will comply with all applicable legal and environmental requirements, including those provisions contained in the National Historic Preservation Act.

We trust this information helps you better understand our current plans for upgrading the Keck Telescopes on Mauna Kea.

Sincerely,

for Jeff Lawrence
Associate Administrator
for Legislative Affairs

NATIONAL SCIENCE FOUNDATION
4201 WILSON BOULEVARD
ARLINGTON, VIRGINIA 22230

OFFICE OF THE
DIRECTOR

November 22, 1996

Ms. Mililani B. Trask
Ka Lahui Hawaii
P. O. Box 4964
Hilo, HI 96720

Dear Ms. Trask:

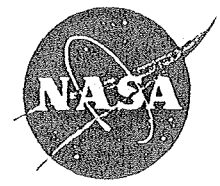
Thank you for your letter of September 19, 1996, requesting that, under the provisions of Section 106 of the National Historic Preservation Act, the National Science Foundation (NSF) consult with Ka Lahui Hawaii regarding NSF-funded astronomical activities within the Mauna Kea Science Reserve. At the present time, NSF is not contemplating any project, activity, or program on Mauna Kea which would qualify as a new undertaking as defined in the NHPA. We, therefore, see no current application of Section 106. I can assure you that, should this situation change, all consultation with appropriate groups, as required under Section 106, will be initiated.

Sincerely,

Neal Lane

Neal Lane
Director

National Aeronautics and
Space Administration
Headquarters
Washington, DC 20546-0001



Reply to Attn of: GG

DEC 10 1996

The Honorable Mililani B. Trask
Governor of Hawaii
Hilo, HI 96720

Dear Governor Trask:

Thank you for your letter to the NASA Administrator dated September 19, 1996. Because of the nature of your letter, it has been forwarded to this office for response.

Your letter requests that NASA consult with Ka Lahui Hawaii regarding astronomical activities funded by NASA at the Mauna Kea Science Reserve, pursuant to the provisions of Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470f, as amended. At the present time, NASA is not contemplating any project, activity, or program at the Science Reserve which would constitute a new undertaking as defined by the NHPA. Therefore, NASA sees no applicability of the Section 106 process to its current activities at the Science Reserve.

If this situation changes, and if a new NASA undertaking or a new NASA-assisted undertaking is contemplated, NASA will comply fully with the NHPA, and consultations with appropriate groups, as required by Section 106, will be conducted.

Sincerely,

Edward A. Frankle
General Counsel

Appendix V

Mauna Kea:
Buried Epistemologies

By Emily Godinet
Revised September 6, 2001

For Geography 757
Research Seminar in Cultural Geography
Brian Murton, Professor

Introduction

The purpose of this paper is to apply the methodology and analysis techniques used in Bruce WillemsBraun's paper Buried Epistemologies: The Politics of Nature in (Post) colonial British Columbia, to examine and analyze the Mauna Kea Science Reserve Master Plan. The Master Plan was prepared for the University of Hawaii by Group 70 International, Inc.

The importance of this particular site of contention over the control of nature lies in recognizing the marginalization of native voices and the modem discursive practices that make it possible. Science, through astronomy, both exploits and constructs nature as devoid of culture at Mauna Kea, even while Hawaiians assert their desire to protect and revere Mauna Kea as sacred.

How exactly does an official entity like the University of Hawaii's Institute for Astronomy perpetuate colonial projects using embedded strategies in documents such as the Mauna Kea Science Reserve Master Plan?

I
Background

Western culture's legacy of colonialism is important to understand in the way it still infuses and affects our policy and practices in everyday life. A most prominent result of which is the nearly complete dispossession of Hawaiian control and ownership of land. "The history of Hawaii is a case study in the rapid progression of a Native society to christianity to capitalism to colonialism" (Kame'eleihiwa p. 317). In fact, the predictable progression of these systems together with rapid land acquisition is part of a colonialist project to assert a seemingly superior and more highly evolved western culture over "savages" and "heathens". The evidence of this legacy lies in the texts left behind. See here how a quote from Calvinist missionary Amos Cooke in 185 1, a witness to the immediate aftermath of the Mahele land divisions, uses christian ideology to legitimize the appropriating of Hawaiian land by westerners at little or no cost:

While the natives stand confounded and amazed at their privileges and doubting the truth of the change on their behalf, the foreigners are creeping in among them, getting their largest and best lands, water privileges, building lots etc., etc.

The Lord seems to be allowing such things to take place that the Islands may gradually pass into other hands. This is trying but we cannot help it. It is what we have been contending against for years, but the Lord is showing us that His thoughts are not our thoughts, neither are his ways our ways. The will of the Lord be done. (Kame'eleihiwa p.301)

The tactics of the colonial land grabbing projects, which many find disturbing today, are unfortunately still present. Indeed representations involving land use and policy are infused with different, but no less overt strategies of separating (Native people from their land), appropriating (the land), marginalizing (Native world views), and other western assertions of cultural domination via christianity, capitalism, colonialism and most recently, science.

Historically, the Hawaiian response to western land appropriating techniques was insightful as Hawaiian scholar S.M. Kamakau notes in 1869, (Kame'eleihiwa translation p.317):

The foreign races are quick tempered and hold nothing sacred in their anger, not even kings or chiefs ... as for the missionaries, some returned and others have become old residents here and their children have taken up the works of their fathers and helped to educate the people and work for the kingdom of God. (But) some of their children have bought land, become owners of stock farms and sugar plantations and have made slaves out of the people with work. And some have become steersmen and navigators for the government. The Hawaiian people welcome the stranger freely; rich and poor, high and low give what they can. The strangers call this love ignorance and think it is good for nothing.

Western tactics and motives were exposed by Hawaiians of the mid 1800's, as they are today, but it is the pervasive nearly invisible strategies of marginalization and minimization of culture that allows the dispossession to continue. A modem example of such colonial practices, met by Hawaiian resistance, lies at the crux of the debate over the use and abuse of the land at the summit of Mauna Kea, elevation 13,796 feet above sea level, on the big island of Hawaii. The University of Hawaii, through the Institute for Astronomy (IFA) commissioned a study (Master Plan) in support of their position to expand development of telescopes on the summit, most importantly, the "Kecks".

The largest of the 13 telescopes on the summit are the Keck twins. Engineers aim to ring the two massive Keck telescopes with four to six smaller connected telescopes and then pool the light for a combined imaging of distant objects 10 times more clearly than today, thereby creating the most powerful telescope on earth.

Proposed new development of the summit has renewed and made public debate over the contentious issues between the summit developers and numerous Hawaiian groups and individuals.

Hawaiians are actively resisting plans to continue to build there because the summit of Mauna Kea is highly culturally and spiritually significant today as it has been for millennia. The debate over the use of the summit of Mauna Kea, a revered and sacred Hawaiian place is constructed by scientific interests as a realm separate from culture.

Protests against the construction and expansion of telescopes are based on past desecration of the sacred and natural including 1) building on top of pu'u, 2) construction on and near sacred burial and temple sites (including pu'u), 3) continued dumping of sewage and hazardous materials onto the porous ground via leach fields, and 4) no meaningful management or enforcement to protect sacred, cultural, historical and natural resources.

The cesspools and septic tanks/leach field systems and the hazardous material that is part of some facilities work including mercury, is especially disturbing because the waters of the summit lake, Wai'au, are used for medicine, blessing and cleansing, and are highly valued for their purity. This water is important for other reasons as well: (Pisciotta, p.6-7)

The nearest term to wealth in the Hawaiian language is waiwai. The Hawaiian word for water is wai. This relationship shows the cultural respect and importance the Hawaiian people attribute to water and its essence. The divine Kanekawaiola, revered in the traditions as the creator and protector of all fresh water, holds a special place in the traditions of Mauna Kea because of the "waters of life" generated there. Poliahu, although best known for her snowy kinolau (divine manifestation and bodily forms) is also of the water.

Separation of culture from important aspects of nature is made possible by contemporary discursive practices that abstract and displace the summit of Mauna Kea from its Hawaiian cultural meanings, and relocate it in the realm of science, the market, the nation and the global community (Willems-Braun).

What methods and strategies does the Institute for Astronomy use to perpetuate the colonial project by separating culture from nature to claim Mauna Kea for science? In a review of the 2000 Mauna Kea Science Master Plan, multiple methods were found as evidenced in the following three passages.

The Mauna Kea Master Plan Deconstructed

The following quote first separates the historical Hawaiian relationship and any existing tenure rights to the mountain and appropriates it for all people equally. "Modem day astronomers" now have the voice and authority to speak for the space, usurping, through language, a Hawaiian voice.

The ancient saying "Mauna Kea kuahiwi ku ha'o i ka malie" (Mauna Kea is the astonishing mountain that stands in the calm) (Puku'i 1983:No.2147) expresses the feeling that Hawaiians and non Hawaiians alike have for this special place. Standing tall over the island of Hawaii, Mauna Kea is home to vast physical, natural and cultural resources. From early adze makers **to modem day astronomers, Mauna** Kea has long been a special place for work, worship and reflection (p. 1-1).

This introductory paragraph also serves to fix Hawaiians temporally in the past as "early adze makers" and astronomers in the present as "modem day astronomers." Because Hawaiians are now relegated to the past, and all people have the same sense of reverence for the mountain, the plan's authors are able to construct within modem day science the authority to speak for Mauna Kea. The native presence is contained in primitive culture: a culture that lies outside of and has no place in the unfolding history of modem science.

This next passage serves to make invisible Hawaiian practices and customs by omission.

The management plan offers an organizational solution and policy guidance to address some of the use conflicts, maintenance and access issues that exist today. The Master Plan assumes that the Mauna Kea Science, Reserve will continue, and even grow, in importance to scientists, educators, naturalists, and recreational users in the years to come (p. 14).

The absence of culture here leads the reader to assume no modem meaningful cultural or spiritual activity takes place on Mauna Kea. So management will speak for the mountain, and all users. Also it could be read that use conflicts refer to Hawaiian use conflicts. Hawaiians are part of the problem, not part of what is going to "grow in importance" to everyone else. This is to be a "privileged site of authority in the western culture of science". (Willems-Braun, p. 8)

In this final excerpt, the authors adopt the language of inclusion to legitimize expansion. Mention of the indigenous peoples of Hawaii is barely made throughout the introduction, yet in the final paragraph, inclusion is professed.

This approach to the Master Plan is based on the principles of integrated cultural and natural resources management planning. This plan appreciates and respects the interrelationships of all facets of the natural systems and cultural context of the site and provides a framework for sustainable development on the mountain. The Plan values preservation and interpretation of indigenous natural and cultural resources and the uniqueness of those resources on Mauna Kea. The proposed Plan, in its simplest sense, attempts to balance economic and scientific prosperity, social equity, cultural values and environmental integrity.

At the end of the paragraph, just beyond the inclusionary language, the authors put all competing parties onto a scale. The word groupings are interesting for the balancing act: "economic and scientific prosperity", "cultural values and environmental integrity", with the phrase "social equity" inserted between. What is social equity? Is it a discursive method to insert science into the landscape as the legitimate speaker for Mauna Kea? This strategy of legitimating an "expert" to speak of and for nature came up earlier the the Plan excerpts in a different way, "expresses the feeling the Hawaiians and non Hawaiians alike have for this special place", where in the Plan appropriates Mauna Kea for all people equally. Equity. Everyone gets equal pieces? What does this mean for Hawaiians, for science?

Using language, the Plan's authors skillfully employ proven colonial technology of gaining and maintaining power and control over strategic resources, by separating, appropriating, omitting and temporally and spatially fixing indigenous peoples from their natural and cultural resources.

Buried Epistemologies

Through the Plan, we are able to learn much about the Hawaiian people. Part of the reference material and officially commissioned studies is an 800 page document of the oral histories of some Hawaiians for whom Mauna Kea is significant. All of the people interviewed (save one) adamantly objected to further development of the summit on past and current lack of respect for the land and by extension, the sacred.

Readers of the Plan also get both an anthropological and archeological study of ancient Hawaiian peoples, their world view and the reasons they built shrines, etc., stories told by scientists about a people, so it seems, long gone. These studies serve to place Hawaiians temporally in the past and spatially removed from the summit, as current based cultural practices are not discussed. Furthermore, while Hawaiian culture is laid on the table through these studies for the public to dissect, any critical examination of western knowledge systems and the culture of science is silent, omitted and unquestioned. Additionally, descriptions, quotes and archival materials are used throughout the document to support and assert astronomy and science as the legitimate and worthy pursuit, at the expense of other ways of knowing about the summit.

The introduction to the Plan, deconstructed, reveals hidden colonial epistemologies on the part of the authors and developers, which continues on into subsequent sections. The goals and objectives section is rife with inclusive and contradictory language such as, "Developing a vision for the sustainable use and enhancement of the Mauna Kea Science Reserve as a Hawaiian place ... both locally and globally". How can "managers" make the "science reserve" a "Hawaiian place"? The ideologies of science and Hawaiian culture are radically different. Hawaiian understanding of their part in place specific nature is accumulated over thousand of **years and** involves qualitative and quantitative information, where all observations and interactions are considered relevant. Western science is interested in the comparative short term (30 **years for western astronomy on Mauna Kea) and** is primarily

quantitative and frequently obtained by experimental data gathered under controlled rather than natural conditions; where by only certain variables are observed manipulated and measured (Roberts p. 62).

Hawaiian culture is further marginalized from Mauna Kea by this document through the use of the concept "research". This quote is from the goals and objective section: "Preserve the cultural landscape to enhance meaning, relationships, and resources for modem appreciation, research and practice". The term research is inextricably linked

to western colonialism. Indeed research alone is a significant site of struggle between the west and indigenous peoples. In complex ways the "pursuit of knowledge" is deeply embedded in multiple layers of colonial practices. As we have seen on Mauna Kea, science is not by any means a pure pursuit of the "truth". Its research is situated in a much larger cultural and social context of struggle (Smith p. 1-3).

Today Hawaiians protest further development of the summit because of the enormous amount of disrespect the Institute for Astronomy has shown the Hawaiian people and their relationship to this most revered and sacred place.

Mauna Kea is the highest and most renowned temple and Wahi Pana (sacred temple of worship) of the Native Hawaiian people. Its summit region is known as Wao Akua - the sacred realm of the Creator. The significance of the Mountain is acknowledged in oral histories throughout all of Polynesia. It is the burial ground of our highest born and most sacred ancestors; it is a temple for worshipping Akua (Creator), Na Akua (Divine Deities), and Na Aumakua (the Divine Ancestors).

Respect is integral to Hawaiian culture: respect for each entity and for each other. Denial by the Institute for Astronomy of basic humanity and self determination in one's relationship to those sacred parts of oneself, is what has marked relations between native Hawaiians and western science on Mauna Kea (Smith p. 120).

Because of the past and currently ongoing defilement of the summit, and the continued marginalization and separation of Native Hawaiian cultural beliefs and practices from Mauna Kea, this Plan, like the one before it, serves only to meet the goals and objectives of whom it was written expressly for, and thereby missing a historic opportunity to democratically shift power relations and create inter-cultural good will. The Plan as it is written furthers a colonial ideological strategy to control the land to exclusive ends, the history and continuity of which offends deepest sense of Hawaiian humanity and love for the land.

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Appendix W

BASIC PROTOCOL AT HAWAIIAN SACRED PLACES

By Phyllis Coochie Cayan

A lesson in protocol begins by following the kapu or special rule for this written work. The following 'olelo noeau (wise saying) is my kapu for this written work. The kapu is given with this mana'o (thoughts) and the reader accepts it by reading my mana'o. Thus, each reader is now obligated to uphold this kapu which is shared "to continue to do good" at na wahi pana (sacred places). As Tutu Pukui noted in her translation, "Blessings come to those who persist in doing good."

O ka pono ke hana 'ia a iho mai na lani.

Continue to do good until the heavens come down to you.

Much of this work is based on protocol taught to me in my childhood from my 'ohana (family). These kapu or special rules are based on the Hawaiian concept of aloha 'aina. What is presented here may differ from other Hawaiian family's teachings. No offense is intended nor any assertion that this is the only way of teaching. Only clarity for proper behavior at Hawaiian sacred places is my focus.

In recent years, there has been increased evidence of desecration and destruction at many Hawaiian sacred places by unknown persons. Much of the damage is done through ignorance of appropriate behavior rather than outright vandalism.

The increase of desecration at heiau, burial sites and burials, and other significant places is of great concern to native Hawaiian practitioners, to families who are the "kahu" (caretaker) of certain sacred places and others who malama these sacred places. Hawaiians and non-natives note a more comprehensive effort must be undertaken to educate everyone on proper protocol. Educational outreach and awareness of culturally appropriate behavior is necessary to sensitize everyone who visits the special and sacred places throughout the Hawaiian Islands.

Basic protocol or knowledge of proper behavior is a very important part of Hawaiian culture. This includes understanding the history and usage of a sacred place, and it requires a proper attitude of respect for the culture and the peoples.

For instance, thousands of visitors and residents go to the various National Parks (i.e., Volcano, Honaunau, Haleakala) and leave an offering of a ti leaf wrapped around a stone. Native Hawaiians are offended by these "stone laulau" offererings that:

a. often are stones and ti leaves removed from the sacred site itself, thereby adding to the damage and desecration'
b. have no cultural meaning and therefore are considered to be disrespectful and offensive to the "gods" and that place; and
c. are left at inappropriate areas throughout the sacred place, thus the offering becomes a desecration in itself.

Ignorance can no longer be an excuse when one purposely visits other peoples and other countries and blatantly ignores other cultural mores. Common sense and simple courtesies that you would display in a church or temple or other religious edifice apply to the sacred places in Hawaii. Heiau, burial mounds, sacred pools, and many of the natural forms that make up Hawaiian sacred places require the same kind of respect as visiting a cathedral in Rome.

The culturally appropriate visitor will find the following tips invaluable when visiting Hawaii and its special places:

a. Prepare and research the places, the peoples and the culture you plan on visiting.
b. Dress modestly especially when planning to tour sacred places.
c. Avoid loud and aggressive behavior including keeping romantic or sexual behaviors out of the public view.
d. Don't be obtrusive, disruptive or damage to the environment wherever you go including being careful not to step on, to sit on or to stand on anything that you may not normally do. Some sacred places are what may seem only "a pile of stones" to the unknowing visitor.
e. Do not plan on taking photos at a sacred place.

One basic concept that permeates throughout Hawaiian culture is "aloha 'aina" or love of the land. This is explained in the Kaho'olawe study on the protocol of Aloha 'Aina for that island:

> "Land, especially within the vast sea, is precious. With this limited resources, Hawaiians understood that the role of humans is to care for the land, not just to use the land...Aloha 'aina, malama 'aina, and ke kahu o ka 'aina (stewardship) are terms defining the relationship of Hawaiians to Kaho'olawe...the late Aunty Edith Kanakaole observed, "Our kupuna leave us the same thought saying: E malama pono I ka 'aina; nana mai ke ola. Take good care of the land; it grants you life."

Visitors and residents alike need to understand and practice aloha 'aina at sacred places and throughout the islands. It is a traditional relationship to the land that today must often be relearned and taught to everyone in order to protect, to preserve and to implement proper uses to maintain the harmony between man and the land. The late Hawaiian activist George Helm expressed his thoughts about aloha 'aina (Ritte, p. 27, Copy of a letter by Helm dated 1-29-77):

> "The truth is, there is man and there is environment. One does not supersede the other. The breath of man is the breath of Papa (the earth). Man is merely the caretaker of the land that maintains his life and nourishes his soul. Therefore, 'aina is sacred. The church of life is not in a building, it is the open sky, the surrounding ocean, the beautiful soil. My duty is to protect Mother Earth, who gives me life. And to give thanks with humility as well as ask forgiveness for the arrogance and insensitivity of man."

In Hawaiian thought, it is considered "hewa" (sinful) to speak or act disrespectfully in the presence of the many gods when visiting na wahi pana. Careful observation of protocol lessens the odds of displeasing the many gods and thereby bringing shame or harm on oneself or one's family. Here are some basic rules taught to me:

a. Before you enter the sacred place, ask permission of the spirits there. You can simply take a moment to silently ask for permission, tell the spirits who you are and why you are there, and give thanks for the privilege of entering that sacred place.

b. Know that you are in the presence of the many gods. All life forms seen and unseen are sacred. Therefore all things require respect for their mana (spiritual life energy). Maintain an attitude of respect with little or no talking.

c. All prayers offered in silence should first acknowledge the spirituality of the place, the unseen and the peoples of that place. Know that the mana of the place is now a part of you, as you become a part of that place simply by being there. Include in your silent prayers a thanks before and after, and do not forget to apologize for any shortcomings you may have caused to the sacred place.

d. Silence is the best behavior to practice at Hawaiian sacred places. This way you will not disturb anyone else who may be there nor will you disturb the harmony of the sacred place.

e. Offerings are not required. Your silent prayers or chants are an offering in itself. Most offerings are done in more formalized rituals or ceremonies. The simple rule when making offerings is to bring items of flowers, ferns or other greenery, and

non-meat items. If you are unsure, then do not bring anything. If there is no kahu taking care of a sacred place, then the offerings often accumulate and begin to litter the area rather than be an enhancement for the gods.

f. A basic rule to follow is – if you are unsure, then don't do it. If you feel you have stepped on or sat on or desecrated an area, than by all means say you are sorry and apologize to the gods. The mana of a place can often affect one's health. For example, many Hawaiian families have experienced a young child suddenly getting sick after an outing to the beach or to the mountains. This requires the parent or an adult to go back to all the areas that the child may have been exposed to and ask forgiveness of the spirits there. By the time the adult returns home, the child is more than likely feeling better again.

All behavior is learned from rules to ensure one's safety or for protection of the natural resources. The Hawaiian practice of lokahi (to maintain a spiritual, cultural and natural balance) with oneself, with others and with the 'aina contributes to aloha 'aina. As observed by the Kaho'olawe Commission study, "An inherent aspect of lokahi is the practice of conservation to ensure availability of natural resources for present and future generations. Rules of behavior are tied to cultural beliefs and values regarding respect of the 'aina. These include the virtue of sharing and not taking too much, and a holistic perspective of organisms and ecosystems that emphasizes balance and coexistence."

In closing, I leave you with Nana Veary's simple words regarding protocol. She says, "...Ask permission and give thanks – that was the Hawaiian protocol that extended to every aspect of life in nature. If you observe this constantly, you being to develop an inner silence, a deep strength that comes from having you mind attuned to the universal consciousness that pervades all things...Whenever I fly to any other island, I ask permission of its guardian spirits. As the airplane lands, I ask permission to be on the island and to partake of its beauty...I always see a rainbow or some sign of welcome. I always feel that this is nature speaking directly to me, responding to my reverence."

As a general rule, proper protocol at Hawaiian sacred places is basically approaching with an attitude of respect and of having as little impact on the 'aina, on the peoples and on the culture as possible. The physical differences of Hawaiian sacred and significant places require as much respect if not more than that of a historic church structure; the 'aina after all having been fashioned by the many gods and Papa (Mother Earth). Ua pau.

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This is not a complete list by any means. Any discrepancies or errors herein are mine alone and do not reflect upon my written or cultural resources. E ho'omau kakou!