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Appendix A1. List of Individuals and Groups Consulted

<u>LAST</u>	<u>FIRST</u>	<u>AFFILIATION</u>	<u>CATEGORY</u>
Abercrombie	Neil	Congressman	Legislative
Abreu	Al	Individual	Community
Agor	Ron	BLNR Member	State
Akaka	Moanikeala	Individual	Community
Armandroff	Taft	W. M. Keck Observatory	Scientific
Baybayan	Chad Kalepa	Kahu Kū Mauna	Cultural
Bergin	Billy	Waimea Resident/former UH BOR	Community Leader/Cultural
Bergin	Pat	Mauna Kea Management Board	Community Leader/Cultural
Bracken	Sherry	Island Issues - Radio Show	Media
Brock	Daniel	West Hawai'i Today - Reporter	Media
Burnett	John	Individual	Community
Callejo	Sam	UH - VP for Administration	UH
Carlson, Jr.	Carl	UH BOR	UH
Carter	Yvonne	Cultural practitioner/Waimea resident	Cultural
Carter	Keoki	Cultural practitioner/Waimea resident	Cultural
Case	Lloyd	Subsistence hunter - Wildlife Conservation of Hawai'i	Cultural
Catterall	Lee	Star Bulletin - Editorial Board	Media
Chang	Jerry	Representative	Legislative
Chinn	Linda	Department of Hawaiian Home Lands	State
Cho	Henry	Former DHHL Commissioner	Cultural/Community Leader
Chu	Roberta	Sr. VP & Manager BOH	Cultural/Community Leader
Cody	Nicole	Student	Cultural/Educational
Coleman	Paul	IFA - Manoa	Cultural/Scientific
Colley	Steve & Carmen	Individual	Community
Cordell	Susan	Environmental Committee of MKMB	Environmental
Crabbe	Moses	MKMB Hawaiian Culture Committee	Cultural/Community Leader
Cross	John	MKMB	Scientific
David	Reggie	Environmental Committee of MKMB	Environmental
DaMate	Leimana	Aha Kiole	Cultural/Community Leader
DeMello	Gerald	Relations Director	UH
Dillard	Orpheus	Individual	Community
Edlao	Jerry	BLNR Member	State
Evans	Cindy	Representative	Legislative
Evans	Kim	Individual	Community
Fergstrom	Blaine	Individual	Cultural
Fergstrom	Hanalei	Temple of Lono	Cultural
Fisher	Scott	Gemini Telescopes	Scientific/Educational
Flickinger	Reed	West Hawai'i Today - Editor	Media
Flores	Miliaka & Joe	Individual	Community
Flynn	Rory	Kukuipahu Energy LLC (w/John Ray)	Business
Freitas	Rockne	Hilo Community College Chancellor	Educational
Fujihara	Gary	IFA - Hilo	Educational/Scientific
Gaines	James	UH - Vice President for Research	Educational
Gon	Sam	The Nature Conservancy/BLNR Member	Cultural/State

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<u>LAST</u>	<u>FIRST</u>	<u>AFFILIATION</u>	<u>CATEGORY</u>
Green	Josh	Representative	Legislative
Ha	Richard	Hamakua Springs Country Farms	Cultural/Community Leader
Hamabata	Matt	The Kohala Center	Community Leader
Hanabusa	Colleen	Senator	Legislative
Hanoa	Pele	Kūpuna - Hawai'i Island Burial Council	Cultural
Hanohano	Faye	Representative	State
Hapai	Marlene	UH BOR; Former Executive Director of Imiloa	Educational/Cultural
Hadway	Lisa	Department of Land and Natural Resources; MKMB	State
Harden	Cory	Sierra Club	Environmental
Hayashi	Masa	Subaru Telescope	Scientific
Heen	Walter	Office of Hawaiian Affairs	OHA
Helfrich	Paula	Individual	Community
Herkes	Bob	Representative	Legislative
Heyer	Inge	Individual	Scientific
Hiura	Arnold	OMKM media relations specialist	Media/State
Hoke	Arthur	Kahu Kū Mauna - Hilo Hawaiian Civic Club	Cultural/Community Leader
Hong	Lea	Hawai'i Trust for Public Lands	Legal/Environmental
Hoover	Jacqui	Hawai'i Leeward Planning Conference	Business
Ikawa	Allan	Big Island Candies - Former Board of Regent	Community Leader
Ishibashi	Wally	ILWU - Hilo	Cultural/Community Leader
Ito	Ken	Representative	Legislative
Johns	Tim	BLNR Member	State
Kahawaiola'a	Patrick K.	Kea'aukaha Hawaiian Homesteads	Cultural/Community Leader
Kakalia	Tiffnie	Kahu Kū Mauna	Cultural/Educational
Kalamau	Jo-Ann	Individual	Community
Kalua	Herring	MKMB - former Hawaiian Homes Commissioner	Cultural/Community Leader
Kamakawiwoole	Reynolds	Hawaiian cultural practitioner	Cultural
Kamakawiwoole	Kalei	individual	Cultural
Kanahele	Pua	Cultural practitioner - Kumu Hula - Hilo Community College	Cultural/Educational
Kanehailua III	Ernest	Royal Order of Kamehameha	Cultural
Kaneha'ilua	Brenda	Individual	Cultural
Kanui	John	Individual	Community
Kapono	Eric	Individual	Community
Kauahikaua	Jim	MKMB Environmental Committee, Hawai'i's Volcanoes National Park	Community Leader/Cultural
Kennedy	Jim	MKMB	Educational
Kenoi	Billy	Mayor	County
Kikuchi	Bill	Individual	Community
Kim	Harry	County of Hawai'i - Mayor, Hawai'i County	County
Kim	Millie	Individual	Community
Kimura	Ka'iu	Imiloa	Cultural/Educational
Kimura	Larry	Kahu Kū Mauna - University of Hawai'i at Hilo	Cultural/Educational
Kinchla	Joan	Kona Hiking Club	Environmental
Kinimaka	Kaniu	Alternative Technologies in Power	Cultural/Community Leader
Kitamura	Mike	Senator Akaka's State Director	Legislative
Kokubun	Russell	Senator	Legislative
Kudritzki	Rolf-Peter	IFA - Manoa	Scientific/UH
Landrum	Vivian	Kona-Kohala Chamber of Commerce	Business
Lee	Nani	Individual	Cultural/Educational

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LAST	FIRST	AFFILIATION	CATEGORY
Leialoha	Julie	Environmental Committee of MKMB	Cultural/Scientific
Lemmo	Sam	Department of Land and Natural Resources	State
Levine	Andy	County of Hawai'i - Mayor's Assistant	County
Lindsey	Robert	OHA Trustee	Cultural/Community Leader
Lovell	Kawika	RCUH	Cultural/State
Lucas	Carolyn	Reporter West Hawai'i Today	Media
Lyon	Kendal	Individual	community
Maberry	Mike	IFA - Maui	Scientific/UH
Mahi	Arthur	Kūpuna	Cultural
Mallow	Antoinette	Kahu Kū Mauna	Cultural/Educational
Marks	Barry	Individual	Community
Masuda	Robert	UH - Special Assistant	Community
Matthews	Amy	Individual	community
McClain	David	University of Hawai'i President	Educational
McDonald	Ruby	Office of Hawaiian Affairs - Hawaiian Civic Club	Cultural/Community Leader
McGuffie	Mark	Hawai'i Island Economic Development Board	Business
McKeague	Kawika	Group 70 consultant	Cultural
McLaren	Robert	IFA - Manoa	Scientific
McLoud	Pablo	Former Ranger OMKM	community
McNett	Mark	individual	community
Mercier	Tyler	individual	community
Mills	Peter	Individual	community
Moon	Alice	Consultant	Community
Nagata	Stephanie	Associate Director - Office of Mauna Kea Management	State
Naleimaile	Sean	Kahu Kū Mauna	Cultural/Educational
Namuo	Clyde	Administrator Office of Hawaiian Affairs	OHA
Nelson	Dickie	I Mua Group - Hawaiian Homestead Association	Cultural/Community Leader
Nishimura	Tetsuo	Subaru Telescope	Scientific
Oi	Cynthia	Star Bulletin - Editorial Board	Media
Omphroy	Leilehua	Kahu Kū Mauna	Cultural
Oshiro	Marcus	Representative	Legislative
Ostrander	Gary	Vice Chancellor for Research, UH Mānoa Campus	Educational
Ota	John	Individual	community
Pacheco	Robert	BLNR Member	Business/State
Panoke	Kaho'onei	Hawaiian Civic Club	Cultural/Community Leader
Pisciotta	Kealoha	Mauna Kea Anaina Hou	Cultural
Poole	Mary	Star Bulletin - Editorial Board	Media
Putland	Stuart	Individual	community
Ray	John	Waimea Resident/Kukuipahu Energy LLC	Business/Community leader
Rice	Koa	Gemini Telescopes	Cultural/Scientific
Rogers	Helen	UH Hilo	State
Sabas	Jennifer Goto	U.S. Senator Daniel K. Inouye's Office	Federal
Sakamoto	Norman	Senator	Legislative
Salmol	Derrick	Individual	Community
Say	Calvin	Representative	Legislative
Schaefer	Barbara	Individual	community
Sherlock	Ululani	Former Kahu Kū Mauna and OMKM	Cultural/Community Leader
Sing	David	Na Pua No'eau	Cultural/Educational
Spencer	Margie	Kūpuna	Cultural

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LAST	FIRST	AFFILIATION	CATEGORY
Springer	Hannah	Kahu Kū Mauna - cultural practitioner	Cultural/Community Leader
Stanton	Chas	Individual	community
Steffey	Eric	Individual	community
Stevens	Ed	Kahu Kū Mauna - cultural practitioner	Cultural
Stevens	Mercedes	Individual	community
Stone	Fred	Individual	community
Stormont	Bill	former Director OMKM	State
Sur	Peter	Hawai'i Tribune Herald	Media
Tajiri	Harvey	UH Board of Regent	State
Takami	Hideki	Individual	community
Takamine	Dwight	Representative	Legislative
Tam	William	Attorney	Legal
Taniguchi	Barry	MKMB - KTA Super Stores	Business/Community leader
Terry	Ron	MKMB; Environmental Consultant	Environmental
Thielen	Laura	Chairperson of Board of Land and Natural Resources	State
Thomas	Don	MKMB Environmental Committee	Community
Tolentino	Mabel	Kūpuna	Cultural
Tseng	Rose	UH Hilo Chancellor	State
Tsuji	Clift	Representative	Legislative
Tzimeas	Ruby	Kona Hiking Club	Environmental
Veillet	Christian	MKMB - Canada France Telescopes	Scientific
Walker	Alice	Kona Hiking Club	Environmental
Ward	Deborah	Sierra Club	Environmental
Warren	DeeDee	Individual	community
Watts	Joy	Individual	community
Wilson	Ross	consultant	Media
Wuddell	Alan	Individual	community
Yeh	Thomas	Attorney	community
		Hawaiian Agencies Organizations	Cultural, educational, social, and community
		Kanaka Council	Cultural and community
		Ahahui Ka'ahumanu Society	Cultural
		Royal Order of Kamehameha	Cultural
		Hawai'i Island Economic Development Board, Gov't Affairs	Business and community
		Mauna Kea Observatory Directors	Scientific
		Kona-Kohala Chamber of Commerce, Gov't Affairs Committee	Business and community
		OHA Beneficiary Advocacy and Empowerment Committee	Cultural and community
		University of Hawai'i at Hilo - Hawaiian Studies Faculty/Students	Cultural and educational
		OHA's Native Hawaiian Historic Preservation Council	Cultural and community
		Association of Hawaiian Civic Clubs	Cultural and community

Appendix A2. Public Meetings

May 2008 Meeting Announcement

COMMUNITY INVITED TO PROVIDE INPUT FOR MAUNA KEA COMPREHENSIVE MANAGEMENT PLAN

Ku'iwalu, a consultant firm working in collaboration with the Office of Mauna Kea Management, is holding a series of public meetings to seek input on the development of a Comprehensive Management Plan (CMP) for the Mauna Kea Science Reserve.

The goal of the CMP is to protect and preserve the natural and cultural resources on Mauna Kea by responsibly and appropriately managing the uses and activities on Mauna Kea. We welcome the community's input or mana'o on this very important project affecting your community.

Tuesday, May 6, 2008

5-7 p.m. @ Waimea Community Center

Wednesday, May 7, 2008

6-8 p.m. @ Kealakehe Elementary School

Tuesday, May 13, 2008

5-7 p.m. @ Hilo High School

Input is also being accepted online at **www.MaunaKeaCMP.com**

*For more info, logon to **www.MaunaKeaCMP.com** or call (808) 539-3580*

May 2008 Meeting Attendance Lists

Mauna Kea CMP Waimea Community Meeting, Waimea Community Center, May 6, 2008

First Name	Last Name
Al	Abreu
Taft	Armandroff
Herring	Kalua
John	Kanui
M	Kapuniai
Nani	Lee
Mike	Maberry
Bob	Masuda
Kawika	McKeague
Koa	Rice
Derrick	Salmol
Barbara	Schaefer
Mercedes	Stevens
Mabal	Tolentino
Christian	Vallet
DeeDee	Warren

Mauna Kea CMP Kona Community Meeting, Kealakehe Elementary School, May 7, 2008

First Name	Last Name
Orpheus	Dillard
Miliaka & Joe	Flores
Brenda	Kaneha'ilua
Ernest	Kaneha'ilua, III
Carolyn	Lucas
Mike	Maberry
Arthur	Mahi
Bob	Masuda
Ruby	McDonald
Kawika	McKeague
Koa	Rice
Betty	Stevens
Ed	Stevens
Ross	Wilson

Mauna Kea Comprehensive Management Plan

Mauna Kea CMP Hilo Community Meeting, Hilo High School, May 13, 2008

First Name	Last Name
Moanikeala	Akaka
John	Burnett
Nicole	Cody
Steve & Carmen	Colley
Kim	Evans
Blaine	Fergerstrom
Faye	Hanohano
Cory	Harden
Masa	Hayashi
Paula	Helfrich
Inge	Heyer
Arthur	Hoke
Patrick L.	Kahawaiola'a
Jo-Ann	Kalamau
Reynolds & Kalei	Kamakawiwoole
Eric	Kapono
Jim	Kennedy
Kendal	Lyon
Amy	Matthew
Aloha & Mark	McGuffie
Kawika	McKeague
Pablo	McLoud
Mark	McNett
Tyler	Mercier
Peter	Mills
John	Ota
Stuart	Putland
Koa	Rice
Chas	Stanton
Eric	Steffey
Fred	Stone
Hideki	Takami
Barry	Taniguchi
Ron	Terry
Deborah	Ward
Joy	Watts
John	Williamson
Thomas	Yeh

November 2008 Meeting Announcement

**COMMUNITY INVITED TO REVIEW AND PROVIDE INPUT
ON THE DRAFT COMPREHENSIVE MANAGEMENT PLAN
FOR MAUNA KEA**

Ku'iwalu, a consultant firm working in collaboration with the Office of Mauna Kea Management, is holding a second round of public meetings for the community to review the draft Comprehensive Management Plan (CMP) for the Mauna Kea Science Reserve.

The goal of the CMP is to protect and preserve the natural and cultural resources on Mauna Kea by responsibly and appropriately managing the uses and activities on Mauna Kea. We welcome the community's input or mana'o on this very important project.

Friday, Nov. 14, 2008

5-8 p.m. @ Kealakehe Elementary School

Monday, Nov. 17, 2008

5-8 p.m. @ Waimea Community Center

Tuesday, Nov. 18, 2008

5:30-8:30 p.m. @ Keaukaha Elementary School

Input is also being accepted online at **www.MaunaKeaCMP.com**

ADA accommodations are available upon request.

For more info, logon to **[www. MaunaKeaCMP.com](http://www.MaunaKeaCMP.com)** or call (808) 539-3580

November 2008 Meeting Attendance Lists

Mauna Kea CMP Kona Community Meeting, Kealakehe Elementary School, November 14, 2008

First Name	Last Name
Richard	Akiona
Charles	Flaherty
Richard	Ha
Marni	Herber
Theresa	Jokiel
Charlotte	Lyman
Alfredo	Martinez
Ross	Wilson

Mauna Kea CMP Waimea Community Meeting, Waimea Civic Center, November 17, 2008

First Name	Last Name
Billy	Bergin
Pat	Bergin
Charles	Bohannan
Lloyd	Case
Andrew	Cooper
Liz (?)	Field-Gomes
Bob	Goodrich
M	Kapuniai
Betty	Lau
Pete	Lindsey
Barney	Magrath
Kihei	Niheu
Barbara	Schaefer
Riley	Smith
Joseph	Sulla
Ron	Terry
C	Veillet
Florian	Veillet

Mauna Kea Comprehensive Management Plan

Mauna Kea CMP Hilo Community Meeting, Keaukaha Elementary School, November 18, 2008

First Name	Last Name
Alex	B
Dane	Byrne
Ikaika	D
Hanalei	Fergerstrom
Cory	Harden
Kaniu	K
Patrick	Kahanaiola'a
Reynolds	Kamakawiwoole
John	Kanui
Manu	Kauhi
Luana	Kawelu
Dave	Korlinski
Rose	Kuami
Bobby	Lee, Jr.
Pete	Lindsey
James	Mary
Pablo	McLoud
Anakura	Melemai
Akaka	Moanikeala
Terence	Nakamura
Helen	Napeahi
Maile	Napoleon
Eugene	Nishimura
John	Ota
Tom	Peek
Kealoha	Pisciotta
Samantha	Puluole-Mitchell
Stuart	Putland
David	Shinn
Judi	Steinman
Hideki	Takami
Deirdre Moana	Tavares
Lehua	Waipa AhNe
Diane	Ware
Jessie	Wenner

Appendix A3. Statewide Survey



Mauna Kea Study

Prepared for:
Ku'iwalu/University of Hawaii
April 2008



Background & Methodology

- Field dates: March 19 to April 1, 2008
- 635 telephone interviews conducted with Hawaii residents statewide. The sample was stratified with the following number of surveys in each area (150=Oahu/135=Kona/139=Hilo/111=Maui/100=Kauai).
- 164 Hawaiians were included in the total sample.
- The initial sample was randomly generated using QMark Research & Polling's proprietary Random Digit Dialing Software.
- The data was weighted in order to show state-wide totals proportional to the population on each island
- The data was input and compiled using SPSS.
- The margin of error for a sample of this size (n=600) is +/- 4.00 percentage-points with a 95% confidence level.



Objectives

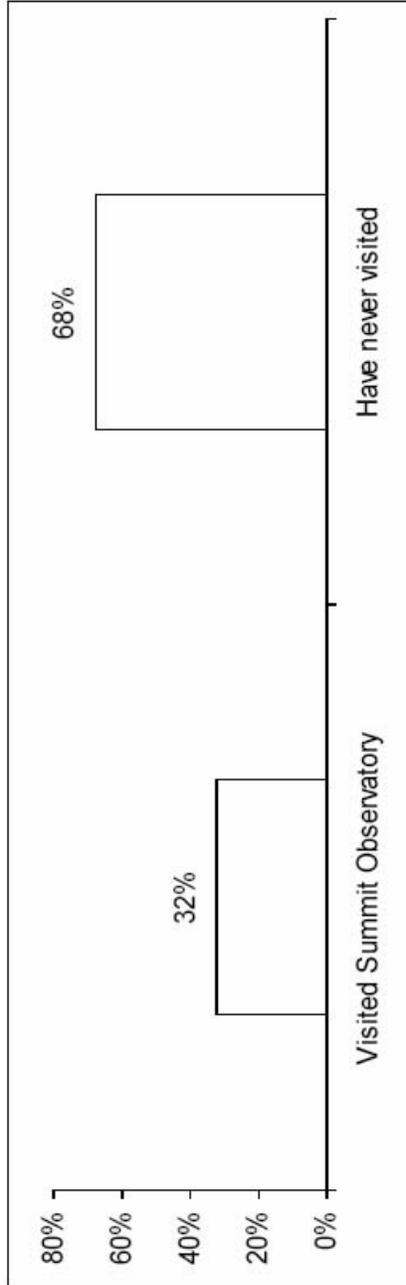
- To measure respondents' awareness and perception of Mauna Kea.
- To gain insight into respondents' knowledge and opinions on the issues surrounding Mauna Kea.
- To determine respondents' level of support of programs and management of Mauna Kea.



Summary of Findings



Visitation to Mauna Kea





Awareness of Reputation

Each respondent was asked if they were aware that Mauna Kea is considered a premier location for astronomical observation and research and that the University of Hawaii’s Institute for Astronomy is one of the top programs of its kind in the world.

	OVERALL
Yes, aware of this fact	80%
Not aware	20%

Very high level of awareness of the importance of Mauna Kea Observatory



Level of Knowledge

Each respondent was asked to rate their overall, general level of knowledge of the issues related to telescopes on the summit of Mauna Kea

	OVERALL
4=Very knowledgeable	3%
3=Somewhat knowledgeable	28%
2=Not too knowledgeable	31%
1=Not knowledgeable at all	38%
Don't know	0%
MEAN	2.0

Most residents do not consider themselves to be knowledgeable



Awareness of Sacredness of Site

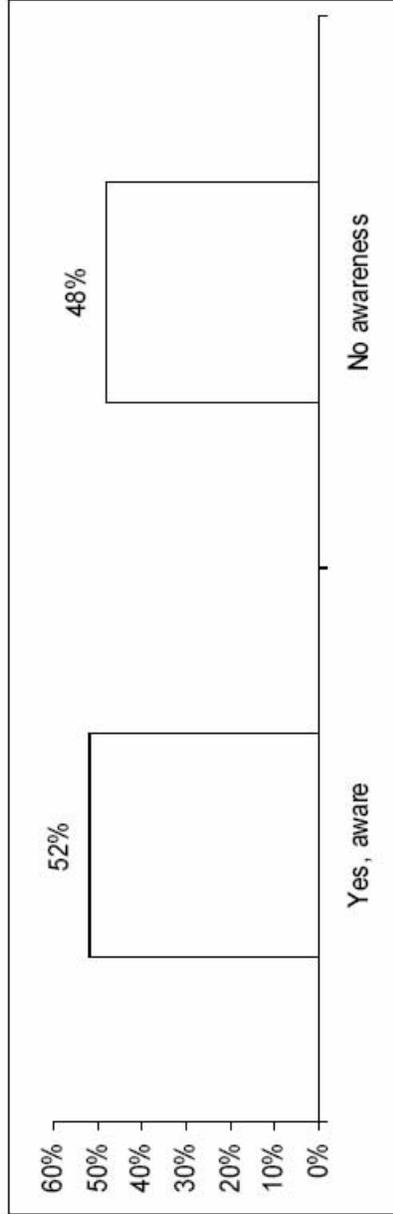
Respondents were then asked if they were aware that the summit of Mauna Kea is considered to be one of the most sacred sites in the Hawaiian Islands.

	OVERALL
Yes, aware of this fact	44%
Not aware	56%



Awareness of Current Issues

Each respondent was asked if they were aware that there is a current ongoing discussion between some people who want to place new and larger telescopes on the summit of Mauna Kea and other people who want cultural beliefs and practices to be followed which could require removal or relocation of the telescopes off the summit.





Awareness of Current Issues

Each respondent was then asked if they felt it was possible to juggle the desire for new and larger telescopes on Mauna Kea at appropriate locations while at the same time protecting sacred cultural sites and the natural resources of the area.

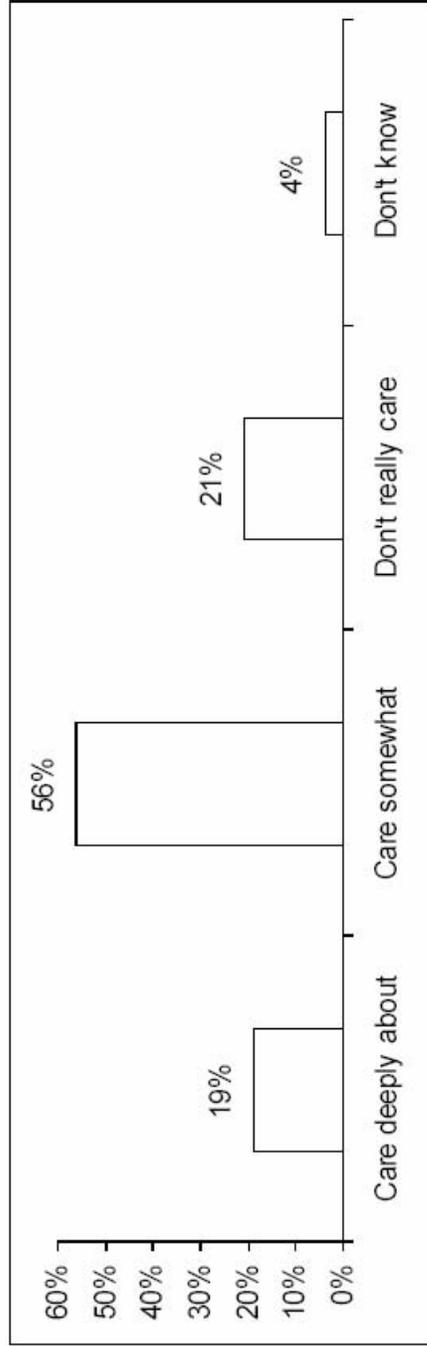
	OVERALL
Yes, it is possible to have both	26%
Yes, it is possible but it will take a lot of work and compromise	64%
No, it will not be possible to do both	6%
Don't know	5%

Almost all residents (90%) feel it will be possible, with work and cooperation, to have new and larger telescopes on Mauna Kea while protecting cultural and natural resources



Level of Concern

Each respondent was asked if this was an issue they cared deeply about.





Personal Perceptions of Mauna Kea Telescopes

Each respondent was read three statements related to this issue and then asked to choose the one that best exemplified their own, personal views.

	OVERALL
I favor new and larger telescopes	26%
Favor placing new and/or larger telescopes only if cultural concerns can be addressed	42%
I favor removing or relocating telescopes	10%
Don't know	18%
Don't care	4%



Resources

Respondents were presented with four ways in which people perceive the resources that Mauna Kea has to offer. After being read each one they were asked to quantify its importance to them personally using a four-point rating scale with four being it is a very important resource and one being it is very unimportant.

	Very Important	MEAN
Scientific/ Educational Resources	66%	3.6
Cultural/ Education Resources	59%	3.5
Cultural/ Environmental Resource	47%	3.3
Recreational Resource/ Visitor Attraction	28%	2.9



Wekiu Bug

After being presented with information on the wekiu bug, they were then read three statements related to this issue and asked which they felt best exemplified their own personal views.

	OVERALL
I agree that the construction of observatories may jeopardize the future of the Wekiu Bug and should not be allowed to exist on Mauna Kea	10%
I am not concerned with the future of the Wekiu Bug and observatories should be allowed to exist on Mauna Kea	16%
I believe the Wekiu Bug and observatories can co-exist on Mauna Kea with the right research and approach	64%
Don't know/ Refused	10%



Issue Statements

Respondents were presented with five descriptive statements directly related to the Mountain and its potential development. They were asked to quantify their perceptions using a four-point rating scale with “strongly agree” being assigned a value of four and “strongly disagree” being assigned a value of one.

	Strongly agree	MEAN
New development of telescopes should be allowed on the summit, provided developments follow all applicable laws	48%	3.3
No new telescopes can be constructed on the summit, but as old telescopes become obsolete, new telescopes can be recycled or constructed within the site of the original telescope, even on the summit	42%	3.2
Telescopes that have become obsolete should be removed and new telescopes may be located at lower, less sacred elevations on the mountain	22%	2.6
New telescopes can be added but only at lower, less sacred elevations of the mountain	14%	2.4
The telescopes should be removed completely as the State lease expires (year 2033) and future development of telescopes should not be allowed on Mauna Kea	8%	1.8



Ceded Lands

- Each respondent was read the following statement:

Mauna Kea is ceded lands. "Ceded lands" refers to 1.2 million acres of land that belonged to the Hawaiian monarchy prior to January 17, 1893 and is currently owned by the State of Hawaii. The Office of Hawaiian Affairs (OHA) is the organization that manages the revenue generated by ceded lands and determines which programs to fund for the benefit of Native Hawaiians. OHA normally receives 20 percent of revenue generated from ceded lands.

The Board of Land and Natural Resources leases the 11,300-acre Mauna Kea Science Preserve to the University of Hawaii for \$1 a year. Annually, the University of Hawaii, Institute for Astronomy (UH) receives several million dollars in usage fees from various government agencies, universities, corporations, and other countries to use or operate the telescopes on Mauna Kea to support their programs and the management of the area.

- After being presented with this information they were then asked how they felt about the idea of 20% of the monies generated by those using the summit be used to benefit Native Hawaiians. They were asked to quantify their perceptions using a four-point rating scale with they strongly agree with this idea being assigned a value of four and they strongly disagree with it being assigned a value of one.



Ceded Lands

	OVERALL
Strongly agree	48%
Somewhat agree	29%
Somewhat disagree	9%
Strongly disagree	11%
Don't know	3%
MEAN	3.2



Fairness of Ceded Lands Policy

Respondents were asked to rate the fairness of the University of Hawaii paying \$1 per year to lease the ceded lands on Mauna Kea. They were asked to quantify their perceptions using a four-point rating scale with it is a very fair deal being assigned a value of four and it is very unfair being assigned a value of one.

	OVERALL
Very fair	16%
Somewhat fair	17%
Somewhat unfair	21%
Very unfair	37%
Don't know	9%
MEAN	2.1

Over half (58%) feel the current lease arrangement is unfair



Public Access to Mauna Kea

Respondents were read four proposals aimed at improving the visitor experience on Mauna Kea and were asked how effective they felt each might be.

	Very Effective
Requiring all visitors to view an informational video to provide a cultural and safety orientation before accessing Mauna Kea	67%
Developing informational brochures to be handed out to visitors at the mountain at Hale Pohaku, the visitors station	48%
Setting a capacity limit on how many visitors, including recreation and commercial, can be on the mountain at any given time	44%
Posting more rangers on the mountain	41%



Cultural Practitioners

Respondents were asked to rate their perceived importance of the input of cultural practitioners as it relates to development atop Mauna Kea.

	OVERALL
Very valuable	50%
Somewhat valuable	38%
Not valuable at all	6%
Don't know	6%



Recap

At the conclusion of the research respondents were asked their opinions once again regarding the future of telescopes on Mauna Kea.

OVERALL	Pre-Survey	Post-Survey	Net – Change +/(–)
I favor new and larger telescopes	26%	27%	1.0
Favor placing new and/or larger telescopes only if cultural concerns can be addressed	42%	55%	13.0
I favor removing or relocating telescopes	10%	8%	(2.0)
Don't know	18%	7%	(11.0)
Don't care	4%	2%	(2.0)

We see an increased acceptance of new and larger telescopes if cultural concerns are properly addressed.

Appendix A4. Website: www.maunakeacmp.com



Community input is critical to ensuring that the CMP accurately reflects the community's concerns and recommendations. We will be conducting a series of public meetings to discuss the development of a CMP for Mauna Kea.

- Waimea on Tuesday, May 6th from 5 to 7 pm at Waimea Community Center;
- Kona on Wednesday, May 7th from 6 to 8 pm at Kealakehe Elementary School;
- Hilo on Tuesday May 13th from 5 to 7 pm at Hilo High School.

If you are unable to attend any of the public meetings but would like to send us your comment or have any questions, you may contact us at 539-3580 or online through www.MaunaKeaCMP.com.

CULTURAL SIGNIFICANCE OF MAUNA KEA

Sacredness of Mauna Kea

‘O Mauna Kea ko kākou kuahiwi la‘a (Mauna Kea our sacred mountain) expresses the feelings that modern day Hawaiians and non-Hawaiians alike have for this wahi pana, or legendary place. As with other cultures throughout the world, early Polynesians believed their highest points of land were the most sacred.

Of the four major islands in the Hawaiian group, tradition tells us that the highest and most sacred places were Mauna Wai‘ale‘ale on Kaua‘i; Mauna Ka‘ala on O‘ahu; Mauna Haleakalā on Maui; and Mauna Kea on Hawai‘i. Mauna Kea, being the highest point throughout Pacific Polynesia, has been considered by many Hawaiian practitioners to be the most sacred of all. Standing tall over the island of Hawai‘i, Mauna Kea was host to early Hawaiian traditions that included, among other things, religious practices, study of the heavens, and tool making in the Keanakāko‘i Adze Quarry.

The Highest Portal to the Hawaiian Universe

Mauna Kea is the mountain altar of Wākea, also known as the celestial father. Wākea is the sire of the indigenous Hawaiian race. The tallest mountain in the world, Mauna Kea is the highest portal to the Hawaiian Universe, and is therefore the pillar of native consciousness. Additionally, Mauna Kea is a Ko‘a, the magnet through which all life flows. Like the fishing ko‘a (traditional fishing grounds), ko‘a Mauna (mountain ko‘a) are shrines that are fed and maintained over many generations to ensure that the links to all life are not threatened.

A Sacred Spiritual Burial Ground

Many traditional Hawaiian eulogies speak to the “ho‘i i Ka-houpo-o-kāne,” or returning into the heart of Kāne. Mauna Kea contains burials of the most sacred chiefs, known as the descendants of Wākea and Papahānaumoku - who gave birth to the islands. It is believed that Mauna Kea is where some of the spirits of the deceased returned. Specifically, Kahoupookāne, a female spring and rivulet, is the spirit entrance into the mountain’s energy. Mauna Kea is known as the piko (umbilical connection to the Universe) of Hawai‘i. Even today, many families continue to bury the umbilical cords of their children on the mountain as a way of certifying indigenous birth. Family shrines are also established on the mountain to serve as a portal for direct spiritual communication with Wākea.

The Source of Life

Mauna Kea makes up a large part of the island’s aquifer; it is believed that Poli‘ahu (snow), Lilinoe (mist) and Waiau (ice) are the female waters in perpetual intercourse with Wākea for the furtherance of all life.

Archeological Sites Found on Mauna Kea

There are hundreds of archaeological sites (e.g., traditional cultural properties, shrines, burials and culturally significant landscape features) within the summit area of Mauna Kea. The State of Hawaii Historic Preservation Division has designated three areas as traditional cultural properties (TCPs): the summit (Kūkahau‘ūla) and Pu‘u Lilinoe in the MKSR and Lake Waiau in the Mauna Kea Ice Age Natural Area Reserve. A large area on the summit of Mauna Kea has been determined to be eligible for listing on the National Register of Historic Places as a historic district.

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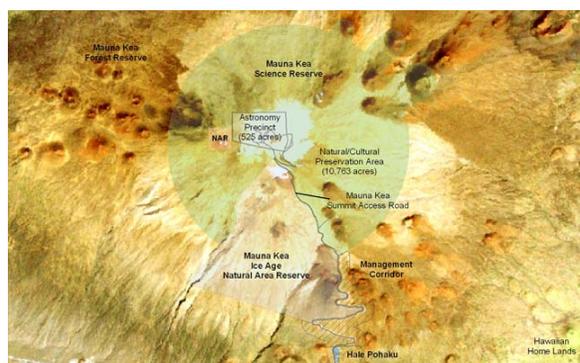
Keanakāko‘i Adze Quarry

Concentrated between 11,000 and 12,500 feet within the Mauna Kea Ice Age Natural Area Reserve is an area of very fine-grained, dense basalt rock formed when lava erupted and flowed beneath the glacial ice caps. These unique rock outcrops were discovered by Hawaiians and quarried for use in the manufacture of adzes (*ko‘i*), traditional stone implements used for chopping and carving wood. Keanakāko‘i is the single largest basalt quarry area in all of Polynesia. The complex also contains shrines, trails, rock shelters and petroglyphs. The Adze Quarry was placed on the National Register of Historic Places in 1962 as a National Historic Landmark.

JURISDICTIONAL RESPONSIBILITIES ON MAUNA KEA

Conservation Lands

The lands of Mauna Kea from about 6,000 feet to the summit are classified as ‘conservation district’ (*Hawai‘i Revised Statutes (HRS) §205-2*). The Department of Land and Natural Resources (DLNR) through the State Office of Conservation and Coastal Lands has the authority to regulate and enforce the uses of conservation district lands (*HRS §183C-3*). Within the conservation district, DLNR has established five subzones: protective, limited, resource, general, or special (*Hawai‘i Administrative Rules (HAR) §13-5-10*). The Mauna Kea Science Reserve (MKSR) lands fall within the purview of these resource subzones (*HAR §13-5-13*).



Credit: SRGII

Lease of conservation lands between BLNR and University of Hawai‘i

In 1968, the BLNR approved a 65-year lease (from January 1, 1968 to December 31, 2033) to the University of Hawai‘i (UH) (*General Lease No. S-4191*) for an area comprising approximately all lands above 12,000 feet. The leased area, known as the Mauna Kea Science Reserve (MKSR), is an approximately circular area (2.5 miles in radius, centered on the UH 2.2m telescope near the summit), except for those areas that were withdrawn and designated as part of the Mauna Kea Ice Age Natural Area Reserve (NAR) in 1981. The boundary on the northeast side of the MKSR has three lobes that extend further down the mountain to include Pu‘u Makanaka and two other large cinder cones.

Presently, the area of the MKSR is 11,288 acres, of which 10,763 acres has been designated a Natural/Cultural Preservation Area and 525 acres as an Astronomy Precinct. (*2000 Master Plan*). The lease identified the “specified use” as “a scientific complex, including without limitation thereof an observatory, and a scientific reserve being more specifically a buffer zone to prevent the intrusion of activities inimical to said scientific complex.”

Leased lands also include a 19.3-acre parcel (Lease No. S-5529) at Hale Pōhaku. The facilities at Hale Pōhaku include the Onizuka Center for International Astronomy (OCIA) (mid-elevation support facilities), the Visitor Information Station (VIS), and an old construction laborer camp.

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Some of the cabins in the old camp are now used by the OMKM rangers, VIS staff, volunteers, and researchers.

Subleases Between University of Hawai'i and Telescopes Facilities

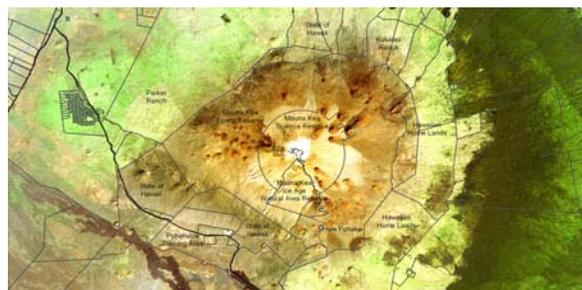
UH subleases portions of the MKSR to telescope facilities, except for those that are considered part of UH (UH 0.6m telescope, UH 2.2m telescope). Conservation District Use Permits are required for each facility.

DLNR Forest Reserve

The DLNR Mauna Kea Forest Reserve lands encompass approximately 52,500 acres above 7,000 ft elevation up to the MKSR boundary. The forest reserve contains mamane forest, habitat for the endangered palila bird. Hunting is allowed in accordance with DLNR regulations (Title 13, Chapter 123). The forest reserve is under the jurisdiction of the Department of Land and Natural Resources, Division of Forestry and Wildlife.

Natural Area Reserve

The Mauna Kea Ice Age Natural Area Reserve (NAR) is comprised of two parcels surrounded by and adjacent to the MKSR. A 143.5-acre square parcel around Pu'u Pohaku, is located to the west of the summit area. Fossil ice left behind by glaciers has been found within its boundaries. The larger 3,750-acre triangular shaped parcel extends from approximately 10,070 feet up to 13,230 feet at the tip of the parcel. Within this larger area are several unique features: Lake Waiau, the only high-elevation alpine lake in the state; the Mauna Kea Adze Quarry; and geomorphic features created by glaciers such as moraines, and glacial till. The NAR area is under the jurisdiction of the Department of Land and Natural Resources, Natural Area Reserves Commission.



Credit: SRGII

Department of Hawaiian Home Lands

The Department of Hawaiian Home Lands has jurisdiction over approximately 53,000 acres of the lands of Humu'ula Mauka that were designated by the Hawaiian Homes Commission Act of 1920 to be made available for homesteading purposes. This land was held under leases by Parker Ranch from 1914 to 2002. Today, limited ranching of cattle continues on Humu'ula, under a permit issued by the DHHL. DHHL is currently working, along with beneficiaries and applicants for pastoral lease lands, on a plan for land stewardship and lessee opportunities on Humu'ula lands near the junction of Saddle Road and the MK Observatory Access Road.

Pōhakuloa Training Area

Pōhakuloa Training Area (PTA) is located in the saddle area between Mauna Loa and Mauna Kea. Totaling 108,792 acres, PTA extends up the lower slopes of Mauna Kea to approximately 6,800 feet in elevation and to about 9,000 feet on Mauna Loa. PTA lands are within the conservation district general, limited, and resource subzones. As the largest military training area in Hawaii, PTA is used for nearly all of the diverse types of training conducted by the armed forces and includes impact areas, firing ranges, an airfield, and maneuver areas.

MAUNA KEA COMPREHENSIVE MANAGEMENT PLAN: FACT SHEET

MANAGEMENT OF THE MAUNA KEA SCIENCE RESERVE

Office of Mauna Kea Management

The Office of the Mauna Kea Management (OMKM) is charged with the day-to-day management of the Mauna Kea Science Reserve as prescribed in the 2000 Master Plan. OMKM works closely with the Mauna Kea Management Board (MKMB) and the Kahu Kū Mauna Council and several advisory committees. The Mauna Kea Management Board (MKMB) is composed of seven members of the community who are nominated by the UH Hilo Chancellor and approved by the UH Board of Regents. The MKMB guides the operations of OMKM and advises the Chancellor on activities, operations and development. Kahu Kū Mauna (Guardians of the Mountain), a nine-member council named by the MKMB, advises the MKMB, OMKM and the UH Hilo Chancellor on Hawaiian cultural matters. Other advisory councils include the MKMB Environment Committee, formed to advise the MKMB on environmental issues; the MKMB Hawaiian Culture Committee; the Astronomy Education Committee; the Public Safety and Conduct Committee; and the Wēkiu Bug Scientific Committee.

Rangers

OMKM manages a ranger program to facilitate visitor safety and education on Mauna Kea. Rangers advise visitors of weather conditions and potential hazards associated with ascending the mountain (e.g. altitude sickness, road conditions). They recommend approaches to safely visiting Mauna Kea and provide emergency assistance when necessary. Educational responsibilities are an important component of the rangers' daily activities. They distribute the safety brochure, provide information on the unique natural and cultural resources, identify the various observatories, direct visitors to established hiking trails, and educate visitors on prohibited or destructive activities. Rangers perform site maintenance activities, including coordination of litter removal ("an ever-present responsibility") and trail maintenance. Daily patrols document the activities of the general public, observatory personnel, and commercial tour operators. Rangers also assist OMKM with compliance matters, including semi-annual inspections of all observatories for compliance with their respective conservation district use permits and compliance with the conditions imposed by the MKMB on specific projects.

Mauna Kea Observatories Support Services

The Mauna Kea Observatories Support Services (MKOSS) is responsible for providing support to the observatory facilities, managing the facilities at Hale Pōhaku; maintaining the summit access road, including road and snow removal; providing utility support, and safety and emergency services; and maintaining the communication network. MKOSS also manages the Visitor Information Station.

Management and Master Plans for Mauna Kea

Management of the MKSR is pursuant to the policies set forth in the General Lease S-4191 between BLNR (lessor) and UH (lessee), the DLNR Administrative Rules Title 13, and the conditions imposed by BLNR on various conservation district use permits.

A series of plans have been prepared for Mauna Kea since the 1970s, including development plans, master plans and management plans. The *1977 DLNR Mauna Kea Plan* was developed to serve as "a policy framework for the management of Mauna Kea". This plan was superceded by the *1985*

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University of Hawai‘i Mauna Kea Management Plan and, later, by the *1995 Revised Management Plan for the UH Management Areas on Mauna Kea*, the current BLNR-approved plan for Mauna Kea. These management plans were designed to assign management and enforcement responsibilities for public and commercial use and institute commercial use and management controls for the area.

The *2000 Mauna Kea Science Reserve Master Plan* was adopted by the UH Board of Regents as the policy framework for the responsible stewardship and use of university-managed lands on Mauna Kea. The master plan created a new management structure, housed within the University of Hawai‘i at Hilo as the local management authority over Mauna Kea. The master plan also delineated an astronomy precinct, which confines astronomy development to 525 acres within the MKSR.

Year	Description of Management Plan	Approved by
1977	<i>Mauna Kea Plan</i> . Adopted by DLNR to serve as policy framework for the management of Mauna Kea. The plan divided Mauna Kea into five management areas and described acceptable uses and management controls for each area. (1998 audit report).	BLNR
1980	<i>Hale Pōhaku Master Plan</i> . Prepared by DLNR to address the mid-level facility at Hale Pōhaku. Served as a guide to UH in the design and construction of the astronomy mid-level facility. The plan incorporated the needs of the six telescopes in the operation at that time, allocated space for public restoration and set controls for future expansion. (1998 audit report).	
1982	<i>Research Development Plan (RDP) for the Mauna Kea Science Reserve and Related Facilities</i> . UH approved the RDP as its own research development plan for the Mauna Kea Science Reserve and Hale Pōhaku facilities. The RDP was to serve as a programmatic master plan for the continued development of the Mauna Kea Science Reserve.	UH Board of Regents
1983	<i>Mauna Kea Science Reserve Complex Development Plan</i> . UH developed this plan to facilitate the implementation of the specific research facilities identified in the plan. The plan consisted of two components. The first component was a complex development plan to provide the physical planning framework to implement the UH Research Development Plan. The objective of the document was to guide and control development in order to preserve the scientific, physical, and environmental integrity of the mountain. The second component was the environmental impact statement to evaluate the general impact of implementing the actions proposed in the complex development plan and propose mitigating actions for potential negative impacts. (1998 audit report).	UH Board of Regents
1985	<i>University of Hawai‘i Mauna Kea Management Plan</i> . Revised management plan to address concerns from DLNR and the public. BLNR retained management control over the commercial activities. (1998 audit report)	BLNR
1995	<i>Revised Management Plan for the UH Management Areas on Mauna Kea</i> . Adopted by UH and DLNR to improve control over commercial uses in the summit area. All management responsibilities, except those related directly to astronomical facilities or the summit road, are transferred back to DLNR. This plan replaced and superseded the 1985 Management Plan. (1998 audit report)	BLNR
2000	<i>UH Mauna Kea Science Reserve Master Plan</i> . Adopted by the UH Board of Regents as the policy framework for the responsible stewardship and use of university managed lands on Mauna Kea. Master Plan created a new management structure, housed within the University of Hawai‘i at Hilo, as the local management authority over Mauna Kea. UH also established the astronomy precinct, which confines astronomy development to 525 acres within the MKSR. (2000 audit report).	UH Board of Regents

FLORA AND FAUNA OF MAUNA KEA

High elevation areas on Mauna Kea can be divided into two basic types: the subalpine ecosystem (5,600 ft to 9,500 ft elevation), and the alpine ecosystem (above 9,500 ft). Hale Pōhaku occurs in the upper reaches of the subalpine ecosystem, while the Mauna Kea Science Reserve occurs in the alpine ecosystem.

Subalpine Flora and Fauna (Hale Pōhaku and Access Road)

The subalpine plant community found at Hale Pōhaku consists of clumps of māmane trees interspersed with open areas of bare soil or rocky outcroppings. Native understory plants include grasses (alpine hairgrass and pili uka); shrubs (‘āheahea, pūkiawe and nohoanu); ferns (kalamoho, ‘iwa‘iwa, and olali‘i); and vines (littleleaf stenogyne and mā‘ohi‘ohi). Hawai‘i catchfly, a threatened species under the Endangered Species Act (ESA), has been observed there as well. A variety of invasive weed species such as grasses and common mullein also inhabit the area, and appear to be increasing in abundance.

Māmane woodlands once stretched from sea level on the leeward side of Mauna Kea to the tree line but have been greatly reduced due to habitat alteration at lower elevations; uncontrolled grazing at the higher elevations by feral sheep, mouflon sheep, and goats; and the presence of invasive plant species that inhibit māmane regeneration.

Māmane woodlands are home to a wide variety of native arthropods (insects, spiders), and several native bird species, including the palila, ‘amakihi, ‘apapane, ‘elepaio, ‘akiapola‘au, and ‘i‘iwi. Māmane trees are the primary food source for birds in the region, providing nectar and seeds on a seasonal basis. The māmane woodlands are also inhabited by many species of non-native birds and mammals (e.g. cats, rats, barn owls, and mongoose) that have a direct impact on native bird populations.

Perhaps the most notable bird species in the māmane woodlands is the palila (*Loxioides bailleui*), an endangered species under the ESA. These unique endemic birds were once common in dry forests on several of the Hawaiian Islands. Habitat alteration, first by humans, and subsequently by grazing mammals, has reduced the palila’s range to a small band of māmane woodlands that stretches around Mauna Kea. Palilas eat māmane seeds and moth larva found in the seedpods, and so are dependent on the survival of the māmane woodlands.

Alpine Flora and Fauna (Mauna Kea Science Reserve)

As you travel up the mountain towards the summit, the vegetation decreases in diversity, density and size. Alpine plant communities on Mauna Kea begin just above the treeline, at approximately 9,500 ft, and rise to the summit of the mountain at 13,796 ft. The alpine plant communities can be divided into shrublands, grasslands, and stone desert, though there are no sharp lines of delineation between them and all are characterized as being predominantly barren rock and cinder with scattered sparse vegetation.

Alpine Shrublands and Grasslands

Alpine shrublands are inhabited mainly by low-lying shrubby species (e.g., pūkiawe, ōhelo, and Mauna Kea dubautia); scattered grasses (e.g. Hawaiian bentgrass and pili uka); and native ferns (e.g., Douglas’ bladderfern, kalamoho, ‘olali‘i, and ‘iwa‘iwa). Historically common, but now rare,

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species found in this community include ‘āhinahina (Mauna Kea Silversword), lava dubautia, ‘ōhelo papa (Hawaiian strawberry), ‘ena ‘ena, nohoanu and alpine tetramolopium. Several non-native plant species (e.g., hairy cat’s ear, sheep sorrel, common mullein, and fireweed) have invaded the alpine shrublands.

Alpine grasslands replace the shrublands around 11,000 ft in elevation, although pūkiawe shrubs can be found in all habitats, all the way to the summit. The alpine grasslands on Mauna Kea, which occur up to 12,800 ft in elevation, are dominated by two native grasses: Hawaiian bentgrass and pili uka.

Relatively few native animal species utilize alpine shrublands and grasslands as habitat. Invertebrates have not been well studied at these locations. Heavy grazing by feral ungulates has decimated the plant communities in the alpine shrublands and grasslands, and invasive plant species now compete with native plants for limited resources such as water and sheltered growing locations.

Mauna Kea Silversword

At one time, the Mauna Kea Silversword, or ‘āhinahina, dominated the alpine landscape on Mauna Kea from 6,000 – 12,300 ft. ‘Āhinahina is a spectacular plant with thick sword-shaped silvery-green leaves growing in a rosette. The population size of the Mauna Kea silversword was drastically reduced through grazing by feral sheep, goats, mouflon sheep and cattle. Recovery efforts for the Mauna Kea silversword are underway through the efforts of federal and state agencies. Recently a new population of Mauna Kea Silverswords was discovered in the MKSR.



Credit: SRGII

Mauna Kea Summit – Alpine Stone Desert

Although it may appear barren to the casual observer, the summit of Mauna Kea supports an interesting variety of species, many of which are found nowhere else in the world. The summit of Mauna Kea (12,800 – 13,795 ft) is considered an alpine stone desert. This plant community consists of mosses, lichens, and algae, and a limited number of vascular plants, predominantly the same species found in the alpine shrublands and grasslands (e.g., Hawaiian bentgrass, pili uka, ‘iwa‘iwa, and Douglas’ bladderfern). Most of the species of plants found in the region are endemic (occurring only in Hawai‘i) or indigenous (native to Hawai‘i but occurring elsewhere). A few non-native plant species (e.g., hairy cat’s ear and common dandelion) have also become established in the summit region at low densities.

Lichens and mosses dominate the alpine stone desert in terms of diversity and abundance. A survey of lichens on the summit of Mauna Kea identified 21 species (plus five possible other species). Around half of the lichen species found on Mauna Kea are endemic (found only in Hawai‘i), two of which (*Pseudephebe pubescens* and *Umbilicaria pacifica*) are limited to Mauna Kea alone. The remaining species are indigenous to the Hawaiian Islands. *Lecanora muralis* is the most abundant lichen on Mauna Kea; other common species on the summit are *Lecidea skottsbergii* and *Candelariella vitellina*.

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Mosses at the summit occur in protected places where water availability is more consistent, such as under overhanging rocks and in shaded crevices or caves where snow melts slowly. A survey of the mosses on the Mauna Kea summit area (above 13,000 ft) identified approximately 12 species (some could not be identified with certainty to the species level), most of which are indigenous to the Hawaiian Islands. Two moss species, *Bryum hawaiiicum* and *Pohlia mauiensis*, are endemic. The most common species of moss include a previously undescribed species of *Grimmia* and *Pohlia cruda*.

The animal community at the summit is dominated by arthropods (e.g., insects and spiders). Other than man, very few vertebrate species venture this high. The arthropod community on the summit of Mauna Kea can be divided into two parts: those species that are blown up the mountain from lower elevations by the wind and die there in the cold (referred to as aeolian drift), and those cold-adapted species that are permanent residents, that feed on the aeolian drift or on one-another. The arthropod community on the summit is highly unusual in that it is mostly made up of predators and scavengers, and there are very few species that rely on plants as their sole food source.

Through the various studies conducted at the summit of Mauna Kea, 21 resident species, and 14 species of undetermined origin (unknown if they are resident or aeolian) have been recorded as occurring in the alpine stone desert. Native resident species include the Wēkiu bug, a noctuid moth, a hide beetle, a large wolf spider, three sheet-web spiders, three species of springtails, two species of mites, a bark louse and a centipede. Non-native resident species include a book louse, big-eyed bug, a hunting spider, a sheet-web spider, and an unidentified jumping spider. It is thought that the non-native spiders may be negatively impacting the native arthropods, but their true impact is unknown.

Wēkiu Bug

The Wēkiu bug (*Nysius wekiuicola*) is the best-studied invertebrate at the summit – there is little information available regarding the habits of most of the other summit species. The Wēkiu bug is a federal candidate species, meaning that it is being considered for listing as threatened or endangered under the ESA, but has not yet been listed. The Wēkiu bug was first recognized as a new species in 1979. It is a true bug in the family Lygaeidae (order Heteroptera), and is approximately the size of a grain of rice. Wēkiu bugs reside in the cinders on the summit of Mauna Kea, where they use their straw-like beaks to suck the hemolymph (blood) from dead and

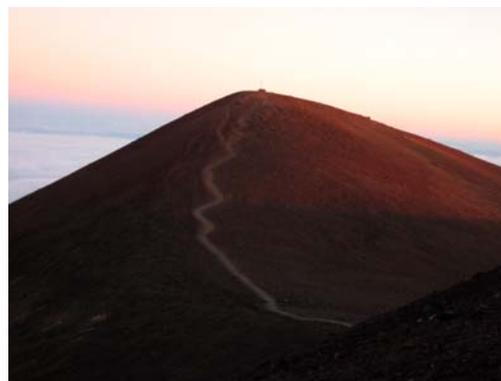


Credit: Jesse Eiben

dying insects in the aeolian drift. Wēkiu bugs mainly reside on or near the crater rims of cinder cones that formed nunataks (ice free areas rising above the surrounding glacier) or that lay at the glacier limit during the last glaciation, and are most abundant on the north- and east-facing slopes (and on slopes shaded by local topography), where seasonal snow remains the longest. Wēkiu bugs can often be seen foraging on the edge of snow banks. Crests of glacially overridden cones and inter-cone expanses of glacial till appear to lack suitable Wēkiu bug habitat. Research continues into aspects of the Wēkiu bug's population size and distribution, life history, and genetics.

PHYSICAL RESOURCES OF MAUNA KEA

Rising nearly 33,000 feet from the ocean floor, with a peak elevation of 13,796 feet, Mauna Kea is the highest point in the Pacific Basin and the highest island-mountain in the world. Mauna Kea was listed as a National Natural Landmark in 1972. One of the reasons given for placing the mountain on this register by the National Park Service is that Mauna Kea is the “Most majestic expression of shield volcanism in the Hawaiian Archipelago, if not the world.” Other unique geologic features of Mauna Kea include numerous cinder cones (*pu‘u*) that rise above lavas of the upper plateau, and evidence of glaciers that covered nearly 27-square miles of the summit region during the Pleistocene Epoch (Ice Ages) approximately 18,000 years before present.



Credit: SRGII

Geology

‘Hawaiian Hotspot’ magmas, pushed up through the oceanic crust, began building Mauna Kea approximately 750,000 years ago. Throughout its building stages, a‘a and pahoehoe lavas flowed from three main rift zones, forming a volcano resembling a warrior’s shield. Towards the end of the post-shield stage eruptions became more explosive, discharging magma referred to as tephra. These eruptions created the numerous cinder cones dotted across the highest elevations of Mauna Kea. The lavas and other volcanic material comprising the mountain yield clues as to how volcanic processes occur and how those processes relate to the formation of our continental crust.

Three cinder cones (*pu‘u*) make up the summit of Mauna Kea (Pu‘u Hau‘oki, Pu‘u Wēkiu, Pu‘u Haukea), collectively referred to as Pu‘u o Kūkahau‘ula, a traditional deity associated with fisherman families. There are additional cinder cones (e.g., Pu‘u Keonehehe‘e, Pu‘u Makanaka, Pu‘u Poepoe, Pu‘u Poli‘ahu, Māhoe, and Pu‘u Waiau) below the summit that also have traditional cultural significance and associations with Hawaiian deities.

During the Pleistocene Epoch (Ice Ages) the summit region of Mauna Kea, above approximately 12,500 feet, was covered with glaciers. Scientists agree that at least three different glaciers, referred to as members, were presented during the time span of 150,000 to 18,000 years before present. The movements and melting of the glaciers contributed to the unique land shapes and features of the upper mountain, leaving behind glacial moraines and accumulations of glacially transported and deposited rock, ash, and cinder, which can be observed down to elevations as low as 9,875 feet. In addition it is believed that melting of the glaciers was the first source of water for Lake Waiau.

Climate

Above 7,000 feet, the upper slopes and summit region of Mauna Kea are classified as high alpine desert, above the trade wind inversion, where the air is dry and cool. During winter months (November-April) low-pressure systems tend to inhibit formation of the inversion layer, permitting increased precipitation, including snowfall at the summit. Annual precipitation ranges from 7-18 inches in the summit area to 12-20 inches at Hale Pōhaku.

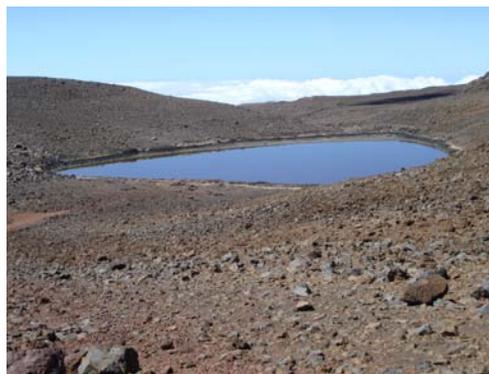
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Hydrology

There are seven watersheds with upper boundaries that extend into the MKSR. Water flow in the gulches and streams within the MKSR is ephemeral, and surface flow occurs only during periods of rapid snow melt or during infrequent high magnitude rainfall events. There are several springs along the gulches located below approximately 12,000 feet.

Situated in the adjacent Mauna Kea Natural Area Reserve at an elevation of 13,020 ft, Lake Waiau is one of the world's highest alpine lakes.

Approximately 7.5 feet deep at capacity, hydrologic studies of Lake Waiau have determined that snow melt within the crater of Pu'u Waiau and rainfall landing both in the pu'u and on adjacent upslope lands located inside the MKSR are the primary sources of water in the lake. This small body of water holds great traditional significance for many Hawaiian families.



Credit: SRGII

ACCESS

Vehicular Access

The summit of Mauna Kea is accessible from Saddle Road, Route 200, which connects Hilo to Māmalahoa Highway. From Saddle Road at Pu'u Huluhulu, a paved road extends approximately six miles to Hale Pōhaku. From there, the summit access road extends to and loops around the summit for 10 miles. The first 4.6 miles of the road above Hale Pōhaku is unpaved.

There are parking areas near Hale Pōhaku and the Visitor Information Station (VIS). There are three visitor parking areas along the summit access road: just after the paved road begins, near the trailhead to Lake Wai'au, and just past the junction of the access road and the summit loop. Parking is also available at the summit in the vicinity of the telescopes.

Public Access

The public can access the summit of Mauna Kea via the summit access road and hiking trails. There is no restriction to access except when the road is deemed too dangerous because of weather conditions or when there is snow or ice on the road. Hikers are requested to register at the VIS and inform rangers of their travel plans.

Safety

Mauna Kea is a remote locale with no public accommodations. At 13,796 feet the summit is subject to severe weather conditions. This altitude may also cause acute mountain sickness, especially for those who do not take time to acclimate at Hale Pōhaku. The road above Hale Pōhaku is steep, rough, winding, and particularly dangerous in bad weather. Most rental car companies do not permit their cars on Saddle Road (Route 200) or up to the top of Mauna Kea. Only four-wheel-drive vehicles are recommended beyond the visitor center.

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UTILITIES

Water and Wastewater

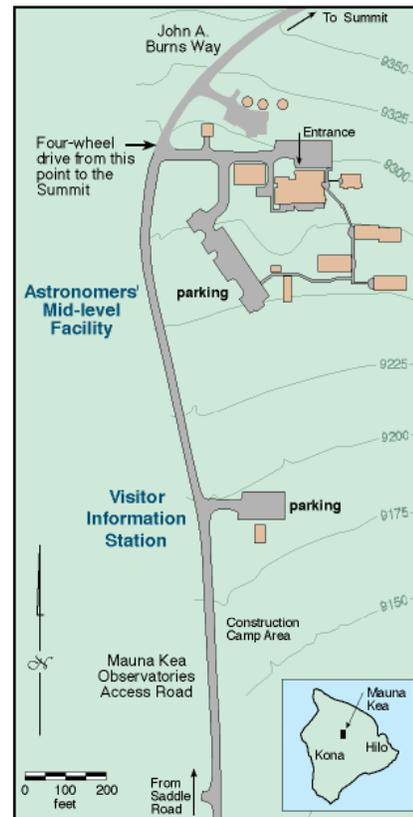
Water is trucked to Hale Pōhaku and the summit from Hilo several times a week.

All sewage disposal and treatment is handled by individual wastewater systems (cesspools and septic tank/leaching field) servicing each facility.

Electricity and Communication

Power and communication lines have been installed underground and support facilities at both Hale Pōhaku and the summit. Electricity for Mauna Kea is presently fed via a 69KV overhead radial feed system to Hale Pōhaku Substation. From this substation there is an underground 12.47KV dual-radial feed system that essentially loops around the Mauna Kea summit.

In the mid-1990s fiber optic lines were installed to provide high-speed communication capability to the Mauna Kea observatories.



Credit: UH Institute for Astronomy

MAUNA KEA COMPREHENSIVE MANAGEMENT PLAN: FACT SHEET

TELESCOPES ON MAUNA KEA

There are currently thirteen telescopes near the summit of Mauna Kea. Nine of them are for optical and infrared astronomy, three are for submillimeter wavelength astronomy and one for radio astronomy. They include the largest optical/infrared telescopes in the world (the Keck telescopes), the largest dedicated infrared telescope (UKIRT) and the largest submillimeter telescope in the world (the JCMT). The westernmost antenna of the Very Long Baseline Array (VLBA) is situated at a lower altitude two miles from the summit (*UH Institute for Astronomy*).

Mauna Kea Telescopes (2008) (http://www.ifa.hawaii.edu/mko/telescope_table.htm)

	Name	Mirror	Owner/Operator	Year Built
Optical/Infrared				
UH 0.6m	UH 0.6-m telescope	0.6m	University of Hawai'i	1968
UH 2.2m	UH 2.2-m telescope	2.2m	University of Hawai'i	1970
IRTF	NASA Infrared Telescope Facility	3.0m	National Aeronautics and Space Administration/ UH	1979
CFHT	Canada-France-Hawaii Telescope	3.6m	Canada/ France/ UH	1979
UKIRT	United Kingdom Infrared Telescope	3.8m	United Kingdom	1979
Keck I	W. M. Keck Observatory	10m	Caltech/ University of California/NASA	1992
Keck II	W. M. Keck Observatory	10m	Caltech/ University of California/NASA	1996
Subaru	Subaru Telescope	8.3m	Japan	1999
Gemini	Gemini Northern Telescope	8.1m	USA/ UK/ Canada/ Argentina/ Australia/ Brazil/ Chile	1999
Submillimeter				
CSO	Caltech Submillimeter Observatory	10.4m	Caltech/ National Science Foundation	1987
JCMT	James Clerk Maxwell Telescope	15m	UK/ Canada/ Netherlands	1987
SMA	Submillimeter Array	8x6m	Smithsonian Astrophysical Observatory/ Taiwan	2002
Radio				
VLBA	Very Long Baseline Array	25m	National Radio Astronomy Observatory/ National Science Foundation/ Associated Universities, Inc.	1992

Mauna Kea's Unique Environment for Astronomical Research

The summit of Mauna Kea hosts the world's largest ground-based astronomical observing site, considered to be the finest in the world. Physical characteristics that set Mauna Kea apart from other sites include high altitude, atmospheric stability, minimal cloud cover, low humidity, dark skies (resulting from remoteness from urban development and the County of Hawaii's island-wide lighting ordinance), and the transparency of the atmosphere to infrared radiation. A tropical inversion layer about 2,000-ft thick, between 5,000-7,000 ft, provides the upper atmosphere with a buffer from the lower moist maritime area, keeping it clear, dry and free of atmospheric pollutants. Due to the location of the Hawaiian Islands within the northern hemisphere tropics, astronomers can observe the entire northern sky and nearly 80 percent of the southern sky.

MAUNA KEA COMPREHENSIVE MANAGEMENT PLAN: FACT SHEET

Discoveries Made by Mauna Kea's Telescopes

Over the years, Mauna Kea's telescopes have contributed to a better understanding of our planet and the universe. Following are news articles that highlight some of Mauna Kea's more recent discoveries:

Hawai'i's Mauna Kea Observatory Aids Discovery of Largest Transiting Extrasolar Planet Found Around A Distant Star

The Honolulu Advertiser

November 7, 2007

<http://snipr.com/MaunaKeal>

Web of dark matter spans space

The Vancouver Sun

February 21, 2008

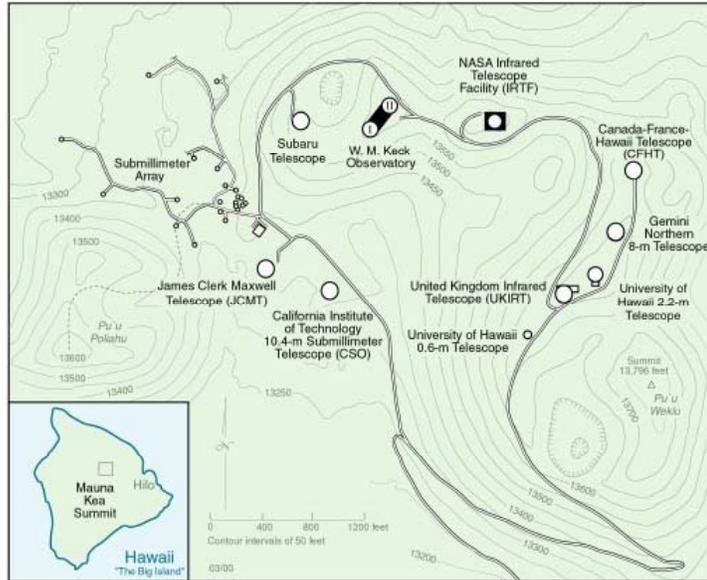
<http://snipr.com/MaunaKea2>

UH scientists observe flipping star

The Honolulu Star-Bulletin

February 19, 2008

<http://snipr.com/MaunaKea3>



Credit: UH Institute for Astronomy

Viewing Time

The University of Hawai'i receives 10 to 15 percent of each telescope's viewing time in place of a monetary rental fee. This telescope time is allotted to UH scientists to conduct research. Telescope organizations pay for operational and infrastructure development costs on Mauna Kea, such as roadway improvements, installation of fiber optics, operation of the Visitor Information Station, and snow removal.

Education

To live and work under the sky of Hawai'i is an extraordinary privilege. The University of Hawai'i's unmatched access to the telescopes and instruments on Mauna Kea represent a unique resource for education and research. The University of Hawai'i at Mānoa offers both a masters and doctorate degree in astronomy and the University of Hawaii at Hilo offers a bachelors degree. The program is designed for students with a strong background in physical science and focuses on training professional astronomers for academic and research positions.

'Imiloa Astronomy Center

Framed by Hawai'i's rich Polynesian tradition of exploration, 'Imiloa Astronomy Center, is Hawai'i's premier facility for interpreting the deepest mysteries of the universe by the Mauna Kea observatories; educating and inspiring students and teachers and communities worldwide; and presenting a global vision of integrated, scientific technological and cultural leadership for 21st century America. 'Imiloa explores the connections between Hawaiian cultural traditions and the science of astronomy. (*'Imiloa Astronomy Center*)

INSTITUTE FOR ASTRONOMY'S LONG-TERM DEVELOPMENT OF OBSERVATORY SITES ON THE SUMMIT OF MAUNA KEA

The Role of Astronomy in Hawai'i

The Institute for Astronomy (IfA) is one of the most respected astronomy institutes in the world. It attracts highly talented faculty and promising students from around the world. It owes this success, in large part, to its access to the world-class observatory complex on Mauna Kea. Rather than expend enormous financial resources to build and maintain these telescope facilities, the University, following the initiative and leadership of IfA, entered into scientific partnerships with national and international partners. Through these scientific partnerships, the observatory organizations provide the funds to build and operate the facilities. The University receives a guaranteed share of observing time at no cost. Most of this is used by IfA astronomers and students (Response to HCR 314, Regular Session of 2006, by Rolf-Peter Kudritzki, Director, Institute for Astronomy, Dec. 1, 2006).

A Modified Plan for Long-Term Astronomical Development on Mauna Kea

It is IfA's goal to sustain Hawai'i's reputation as the premier facility of ground-based astronomy study in the world. This achievement will not only benefit UH as an educational and research institution, but will also have broad educational and economic benefits to the entire state. IfA's modified plan includes the following for the next 20 years:

Submillimeter Array (SMA)

The 2000 Master Plan originally proposed 12 more antennas and 24 new concrete pads for the array; the new modified plan proposes 2 more antennas and two pads. UH is also working on relocating two existing antenna pads located at the base of Pu'u Poli'ahu, a culturally significant site, pursuant to request by Kahu Kū Mauna.

UH Hilo Instructional Telescope

The 2000 Master Plan originally proposed to build a new observatory site on the summit ridge for the UH Hilo instructional telescope. Instead of building on a new site, IfA gave UH Hilo the use of the UH 24 in (0.6 m) telescope site for its instructional telescope.

Pan-STARRS Observatory

Pan-STARRS uses completely new technology to detect killer asteroids that threaten to collide with the Earth. IfA is proposing to redevelop the site of the existing UH 2.2 meter Telescope for Pan-STARRS.

Thirty-Meter Telescope (TMT)

With its 30m-diameter mirror, TMT will be the largest telescope in the world. It will be able to detect the most distant galaxies in the universe, seeing them in a stage when the universe was still very young, just after the Big Bang. Mauna Kea is being considered as a candidate site for the TMT, along with locations in Mexico and Chile. The proposed site for this observatory will be on the northern plateau below the summit ridge. The TMT is a one billion dollar project – the most ambitious project in modern astronomy – and will have an enormous scientific, educational and economic impact. If Hawai'i is chosen as the location, the TMT will secure leadership of Hawai'i in astronomical science for the next few decades.

Obsolete Telescopes

IfA is proposing to demolish some of the old facilities and conduct site restoration.

MAUNA KEA COMPREHENSIVE MANAGEMENT PLAN: FAQs

What is the Comprehensive Management Plan (CMP) for Mauna Kea?

State law defines a management plan as a comprehensive plan for carrying out multiple land uses. The CMP for Mauna Kea, therefore, is a management plan that will specifically address multiple land uses on those lands managed by the University of Hawai'i (UH) on Mauna Kea. The CMP will provide a management framework for the Office of Mauna Kea Management (OMKM) to address existing and future activities on these conservation lands, with the goal of protecting Mauna Kea's significant cultural and natural resources.

What is the management area covered by the CMP?

The CMP will address UH-managed lands on Mauna Kea, including the Mauna Kea Science Reserve (MKSR) (11,288 acres); the 19.3-acre site at Hale Pōhaku (including the Onizuka Center for International Astronomy (OCIA), the Visitor Information Station and cabins); and the summit access road from Hale Pōhaku to the MKSR boundary at the approximately 12,000-foot elevation, including a corridor approximately 400 yards on either side of the improved road (except for portions of this corridor which fall within the boundary of the Natural Area Reserve).

What is the land-use zoning for the CMP management area?

The summit of Mauna Kea is located in the resource subzone of conservation district lands that fall under the jurisdiction of the Department of Land and Natural Resources (DLNR). Conservation district lands are regulated to conserve, protect and preserve the important natural resources (i.e., plants; wildlife; cultural, historic and archaeological sites) through appropriate management that promotes long-term sustainability, public health, safety and welfare. Per Hawaii Administrative Rules, Chapter 13-5, the objective of a resource subzone is to develop, with proper management, areas to ensure sustained use of natural resources.

Astronomy projects proposed in the resource subzone require a management plan. Pursuant to a recent ruling by the Honorable Judge Glenn Hara, the management plan must be comprehensive in scope and is a condition of the conservation district rules for granting a permit for astronomical use within the MKSR.

Have other CMPs been developed for Mauna Kea?

No. This will be the first Comprehensive Management Plan for Mauna Kea.

What are the 1995 Revised Management Plan for Mauna Kea and the 2000 Master Plan, and how do they differ?

The *1995 Revised Management Plan for the UH Management Areas on Mauna Kea*, is the current BLNR-approved plan for Mauna Kea. This plan assigns management and enforcement responsibilities of public and commercial use and institutes commercial use and management controls for the UH Management Areas on Mauna Kea.

The *UH Mauna Kea Science Reserve Master Plan 2000 Master Plan* was adopted by the UH Board of Regents as the policy framework for the responsible stewardship and use of university-managed lands on Mauna Kea.

How will the CMP differ from the 1995 Revised Management Plan for Mauna Kea and the 2000 Master Plan?

The CMP will build upon the previous management and master plans to update the management strategies for the range of activities on and uses of Mauna Kea. The CMP will include detailed information about natural and cultural resources, including management recommendations to ensure their protection, by incorporating plans currently being prepared by OMKM consultants. It will also consider how to process and manage existing and potential future uses of and activities on Mauna Kea, such as astronomy, recreational and commercial activities, scientific research, and cultural and religious activities.

What is the proposed schedule for completion of the CMP?

It is anticipated that a draft of the CMP will be available for public review in October 2008. After public review, the CMP will be submitted to the Mauna Kea Management Board for review in November, and then submitted to the BLNR in December 2008 for final review and approval.

Will there be community meetings for the public to give input on the CMP?

Yes. There will be both traditional large public meetings as well as local style talk story sessions throughout the CMP planning process. Meeting dates, times, and locations for the public meetings are posted on the 'Upcoming Meetings' page. The CMP project team is meeting with key stakeholders from various groups throughout the state to receive input. Please contact Ku'iwalu at 539-3580 or via the website if you would like to have a presentation before your organization.

Who will approve of and accept the CMP?

The draft CMP will be available to the community for their review and comment. Thereafter, the CMP will be submitted to the Mauna Kea Management Board for review, and then to the Board of Land and Natural Resources (BLNR) for final submission and approval.

Who will implement the CMP?

The Office of Mauna Kea Management will implement the CMP. The CMP process may include recommendations for consideration by other entities, including the Department of Land and Natural Resources.

Will the CMP consider Native Hawaiian practices?

Yes. The CMP will seek to honor and respect Mauna Kea as a culturally significant site. The CMP will address concerns regarding the multiple uses of Mauna Kea (e.g., telescopes, human access) as they impact the cultural resources of Mauna Kea. Through community engagement, culturally appropriate management recommendations will be identified to manage the uses of and activities on Mauna Kea in order to sustain the cultural integrity of Mauna Kea. The CMP will contain strategies to preserve and protect native Hawaiian traditional and customary practices, culturally significant resources, and access to them.

MAUNA KEA COMPREHENSIVE MANAGEMENT PLAN: FAQs

Will the CMP address visitors and their impact on the summit's environment?

Yes. In addition to being a sacred cultural site, a unique natural environment, and a place of astronomical study, Mauna Kea is a frequent stop for tourists and recreational visitors. The CMP will recommend management measures designed to minimize the impact of visitors on Mauna Kea's sensitive environment.

Will the CMP address the future of telescopes on Mauna Kea?

The CMP will provide guidelines and recommendations for evaluating potential future land uses and ensuring that potential impacts to cultural and natural resources are minimized. In addition, the CMP will address issues related to locations for new developments, decommissioning of telescopes, and site restoration.

Is the CMP being driven by the proposed new telescope developments, i.e. Pan STARRS and TMT (Thirty Meter Telescope)?

No. For OMKM a CMP is necessary for managing activities on and uses of Mauna Kea whether or not new development occurs. OMKM and the MKMB need a CMP to guide them in the review of any future project that is submitted for review. Any future land use, including PanSTARRS or TMT, will be required to comply with all federal, state, and county regulatory requirements, including DLNR conservation district use permits and environmental laws set forth in Hawaii Revised Statutes, Chapter 343.

Appendix A5. Media Coverage



Local News

No stop, no top of mountain

Enforced orientation is proposed for all Mauna Kea visitors

By Peter Sur

Tribune-Herald Staff Writer

Published: Friday, October 31, 2008 10:57 AM HST

All visitors going to Mauna Kea would be required to undergo an orientation, according to a summary of a draft management plan released earlier this month.

The draft Mauna Kea Comprehensive Management Plan will come out by the end of the year for public review, said Dawn Chang, the principal of consultant Ku'iwalu. The company is preparing the management plan for the University of Hawaii, which holds the lease on Mauna Kea's summit region.

"Nothing is set in stone," Chang said.

Chang, a former state deputy attorney general, said the "voluminous" draft CMP would not likely be ready for review by the time a series of public meetings are held around the Big Island in mid-November. She said the 10 pages of recommendations in the summary distilled the essence of the draft, and would be sufficient to get feedback.

"We're taking this plan out to the community through public meetings," Chang said. She has also spoken to smaller groups; on Thursday, Chang was interviewed by phone just after leaving a Kona-Kohala Chamber of Commerce meeting.

Following the publication of the draft recommendations and the public meetings, comments gathered in the process will be incorporated into a final version. The state Board of Land and Natural Resources must give final approval to the plan, which is required before any new telescopes can be built on Mauna Kea.

At a series of public meetings earlier this year, speakers favored some kind of cultural and environmental orientation for those visiting Mauna Kea.

Chang said such an orientation would include a 30-minute video presentation, similar to what visitors have to see before arriving at the USS Arizona Memorial or Hanauma Bay on Oahu, before going up Mauna Kea.

Many questions about implementing an orientation program remained unresolved, Chang said, including how to pay for it, whether anybody would be exempt and whether visitors would be charged a fee. Chang said those were management decisions that would be addressed by the UH Office of Mauna Kea Management and the broader community, not by the plan.

The draft will also propose that people going up regularly be re-certified by having to watch the video on an annual basis. Visitors might be issued a card, good for a year, Chang said.

It's unclear where this video would be seen. The Mauna Kea Visitor Information Station at the 9,200-foot elevation would need to be enlarged to accommodate the visitors and observatory staff. The 'Imiloa Astronomy Center of Hawaii is large enough, but it would be impractical to require West Hawaii residents to drive to Hilo before being allowed to reach the summit.

Other highlights of the draft plan's recommendations include:

-- Having Kahu Ku Mauna, the advisory council, work with Hawaiian leaders regarding access and traditional and customary cultural practices.

-- Defining and maintaining a trail network with signage, and areas where snow-related activities can occur. Prohibiting commercial tours and tournaments involving snow play, "extreme sports," camping and the building of fires in UH-managed areas.

-- Considering the feasibility of paving the entire summit access road.

-- Developing a plan to remove, monitor and prevent trash from building up on the mountain.

-- Requiring an independent construction inspector, funded by the project, to ensure all aspects of construction comply with protocols and permit requirements, and an on-site monitor during construction activity.

Mauna Kea Comprehensive Management Plan

- Requiring observatories to develop plans to recycle or demolish facilities once their useful life has ended.
- Developing a map with land-use zones in the Astromy Precinct to mark out areas where future land use will not be allowed.

The summary document does not address specific telescopes, such as the proposed Thirty Meter Telescope and the Pan-STARRS asteroid-finding telescope. The TMT's Environmental Impact Statement, now under development, is dependent on the approval of the management plan.

The summary remains silent on what will happen when the UH lease expires in 2033, the thorny issue of ceded land payments to and other political issues not directly connected to resource management.

OMKM Interim Director Stephanie Nagata could not be reached for comment.

Chang was encouraged by the Association of Hawaiian Clubs' recent adoption of a resolution urging the BLNR to approve a management plan and another urging the Legislature to grant OMKM rule-making authority.

This last point is critical for the full implementation of the management plan. As the summary document states:

"Many of the management actions identified in this plan are contingent on the University of Hawaii obtaining rule-making authority, developing rules, and having the authority to enforce those rules. The inability to obtain this authority will continue to impede the university's ability to protect Mauna Kea's cultural and natural resources."

On the Internet: <http://www.maunakeacmp.com>

E-mail Peter Sur at psur@hawaiitribune-herald.com.

How to comment

1. Review a summary of the draft Mauna Kea Comprehensive Management Plan at <http://www.maunakeacmp.com>.
2. Attend one of the following public meetings:
 - 5-8 p.m. Friday, Nov. 14, at Kealakehe Elementary School
 - 5-8 p.m. Monday, Nov. 17, at Waimea Civic Center
 - 5:30-8:30 p.m. Tuesday, Nov. 18, at Keaukaha Elementary School
3. Submit your comments at the meeting, or by fax (808 539-3581), Internet (<http://www.maunakeacmp.com/contact>), e-mail (comments@maunakeacmp.com) or mail (Ku'iwalu, 1003 Bishop St., 27th Floor, Honolulu, HI, 96813). The deadline to submit written comments for the draft CMP is Nov. 26, although comments will continue to be accepted after that.

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Star Bulletin

FRIDAY NOVEMBER 7, 2008 • HAWAII'S OLDEST DAILY NEWSPAPER, SINCE 1882 • 50¢

Mauna Kea visitors might need a class

By Rod Thompson

rthompson@starbulletin.com

HILO >> A draft summary of a comprehensive management plan for Mauna Kea, which includes mandatory education for users of the mountain, has been released by the University of Hawaii and related agencies.

"The preferred approach to managing the cultural and natural resources is based upon education," the 11-page summary says.

That education would "require orientation of users, with periodic updates and a certificate of completion, including but not limited to visitors, employees, observatory staff, and commercial and recreational users."

How extensive such an orientation would be for casual visitors driving up the mountain is not clear, but it would include advice on "culturally appropriate behavior," contact with Mauna Kea rangers, and use of signs and brochures.

Mauna Kea, a prime astronomy site because of the thin atmosphere at the 13,796-foot summit, is considered sacred in Hawaiian culture. According to Malama Mauna Kea, the mountain has 76 ancient shrines and was host to religious practices, observation of the heavens and tool-making.

The plan is being written in response to a 2006 ruling by Hilo Circuit Judge Glen Hara in a lawsuit brought by Hawaiian and environmental groups against six relatively small "outrigger" telescopes proposed for construction around the two giant Keck telescopes on Mauna Kea.

Hara ruled the outriggers could not be built until a comprehensive master plan was written.

UH, which controls the 525-acre summit area, adopted a Mauna Kea Science Reserve Master Plan in 2000. But Hara ruled that the management section was not detailed enough. The current management draft does not propose any new limits on the number of telescopes on Mauna Kea.

However, it recommends a new map showing what portions of the summit area may be developed. It also recommends requiring observatories "to develop plans to recycle or demolish facilities once their useful life has ended."

The recommendations are at www.maunakeacmp.com. Click on "Review CMP Recommendations."

Meetings on the recommendations will be held:

- >> next Friday, Kealahou Elementary School in Kona, 5 to 8 p.m.
- >> Nov. 17, Waimea Civic Center, 5 to 8 p.m.
- >> Nov. 18, Keaukaha Elementary School in Hilo, 5:30 to 8:30 p.m.

West Hawaii Today

Public input sought on Mauna Kea management

by Daniel Brock
West Hawaii Today
dbrock@westhawaii.com
Sunday, November 9, 2008 7:17 AM HST

Got an idea for Mauna Kea? Now would be a good time to mention it.

The Office of Mauna Kea Management and the University of Hawaii, through its consultant Kuiwalu, will be holding a second round of public meetings throughout Hawaii Island to let the community review draft recommendations being considered in the Mauna Kea Science Reserve's Comprehensive Management Plan.

Three forums will be held around the Big Island: 5 to 8 p.m. Nov. 14 at Kealakehe Elementary School; 5 to 8 p.m. Nov. 17 at Waimea Civic Center; and 5:30 to 8:30 p.m. Nov. 18 at Keaukaha Elementary School.

In the first round of meetings, the public was asked to provide comments on the major management issues and concerns regarding Mauna Kea.

Now residents will have an opportunity to offer feedback on the proposed management recommendations before the plan is presented to the Mauna Kea Management Board for review and ultimately submitted to the Board of Land and Natural Resources for final approval.

"The first reason comprehensive management plan is needed, is because Mauna Kea is a significant cultural and natural resource and there is currently no plan to protect the resources," Kuiwalu principal Dawn Chang said.

Officials from the Office of Mauna Kea Management were not available for comment.

Among the multiple uses of Mauna Kea addressed by the draft recommendations are existing and potential development within the Mauna Kea Science Reserve, decommissioning and restoration of obsolete telescopes and access for traditional and customary practices.

Throughout the planning process, Kuiwalu engaged in discussions and exchanged ideas with community leaders, community organizations, Native Hawaiian groups, landowners, public agencies, elected officials and concerned residents.

"This is an issue that has been of a concern of Big Island residents – in particular – many native Hawaiians," Chang said. "It's important to seek their opinion because Mauna Kea is important to everyone on the Big Island, and the community doesn't feel they've been involved in the management process. That's why it's important that we engage the community."

According to the plan's Web site, it will address University of Hawaii-managed lands on Mauna Kea, including the 11,288-acre Mauna Kea Science Reserve; the 19.3-acre site at Hale Pohaku – including the Onizuka Center for International Astronomy, Visitor Information Station and cabins – and the summit access road from Hale Pohaku to the reserve boundary at the approximately 12,000-foot elevation. It will also include an approximately 400-yard corridor on either side of the improved road, except for portions of the corridor that fall within the boundary of the Natural Area Reserve.

State law defines a management plan as a comprehensive plan for carrying out multiple land uses. The comprehensive management plan for Mauna Kea will specifically address multiple land uses in those areas on Mauna Kea managed by the University of Hawaii.

The plan will provide a management framework for the Office of Mauna Kea Management to address existing and future activities on those conservation lands, with the goal of protecting Mauna Kea's significant cultural and natural resources.

It will be the first Comprehensive Management Plan for Mauna Kea, and it comes after a 2006 legal battle in which Judge Glenn Hara ruled that astronomy facilities on Mauna Kea – which is a conservation district -- need a comprehensive management plan.

"It's the right time for the (management plan)," Chang said. "The Office of Mauna Kea Management has been working on this for several years. And because of the judges decision and the culmination of their work, we are now prepared to seek community input on the the draft comprehensive management plan recommendations."

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Appendix A6. Mauna Kea CMP Newsletter

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MAUNA KEA COMPREHESIVE MANAGEMENT PLAN



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ADDITIONAL CONCERNS AND COMMENTS

We were glad to receive an array of additional comments from members of the community, many of which had never been brought to our attention before. This unexpected input proved the value of the public outreach component of the CMP process. Following are some of the variety of concerns and comments raised by those we spoke with.

Native Hawaiian Scholarships

Many who participated in the outreach effort felt the astronomy facilities and the university need to provide greater educational opportunities to the Hawaiian community, either through college scholarships or by developing science and math curriculum utilizing Mauna Kea for our elementary schools.

Enforcement Powers

The lack of enforcement authority for Mauna Kea Rangers was seen to be detrimental for the mountain. Many understand how important the role of the Rangers is in protecting Mauna Kea's cultural and natural resources but questioned how Rangers are expected to do their job effectively when their power is extremely limited.

Hunting and Gathering

We also heard from the subsistence hunters and native Hawaiian cultural practitioners who use Mauna Kea to hunt and gather for cultural or subsistence purposes. Their concern was how the CMP will affect their rights to access.

Legal Issues

Concerns were raised over the legalities and potential conflict of having the plaintiffs in the Outrigger Telescopes case participate in the CMP process when the University was appealing the case.

Jurisdictional Responsibility

Many were interested in knowing if the CMP will address the different jurisdictional issues between the University

of Hawaii at Manoa, University of Hawaii at Hilo, Institute for Astronomy, Office of Mauna Kea Management, Department of Land and Natural Resources, Department of Hawaiian Home Lands, and Pohakuloa, and questioned whether the CMP will include the areas outside the Mauna Kea Science Reserve.

Public Opinion Survey

It was suggested that an island-wide survey be conducted to determine how the community as a whole felt about the issues in question. Those who suggested the survey said it was important to know how those unable to come to the meetings would respond to the issues being raised.

Next Steps for the CMP

Members of the CMP team will review all of the comments received at the public meetings and small talk-story sessions. Our intent is to bring a draft of the CMP to the community for public review in the fall.

Please visit the website, www.MaunaKeaCMP.com to check for updates on meeting announcements and to let us know what you think.

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INTRODUCTION

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COMMUNITY ENGAGEMENT
PROCESS & APPROACH

PAGE 3
SPECIFIC PUBLIC MEETING
QUESTIONS AND ANSWERS

PAGE 4
ADDITIONAL CONCERNS
& COMMENTS

Aloha Kakou,

After several months of public input, the Mauna Kea Comprehensive Management Plan (CMP) team has learned a great deal about the community's views on how Mauna Kea should be protected and managed as a cultural, environmental, educational and recreational resource. I have personally spoken with many of you in small talk-story conversations or heard your statements at public meetings.

The goal of the CMP is to provide the Office of Mauna Kea Management with recommendations to effectively and efficiently manage the uses and activities on Mauna Kea in a way that will preserve and protect its cultural and natural resources. The objective of the community engagement process is to ensure that the CMP honestly reflects the community's sentiments about how Mauna Kea should be managed.

In undertaking this process, we have made every effort to genuinely reach out to the community in as many different forums as we could offer. This report is our way to honor the comments that have been shared with us to date and to keep you informed on the CMP process. I hope you enjoy this newsletter and encourage you to stay in touch, visit the website (www.MaunaKeaCMP.com), get involved and let us know of any questions or comments.

Sincerely,

Dawn N.S. Chang
Principal, Ku'iwalu

VISIT WWW.MAUNAKEACMP.COM FOR MORE INFORMATION

THE COMMUNITY ENGAGEMENT PROCESS AND APPROACH

The team working on the Mauna Kea Comprehensive Management Plan (CMP) believes that an effective plan requires input and participation of as many stakeholders as we can reach. Accordingly, we undertook a variety of initiatives to reach all types of interested groups and individuals in every part of the community.

This work was done in coordination with the Office of Mauna Kea Management (OMKM), Mauna Kea Management Board (MKMB), the Environmental Committee of the MKMB, and Kahu Ku Mauna. As the prime contractor on the project, Ku'iwalu, represented by company principal Dawn Chang, provided regular updates at MKMB public meetings. The Board of Land and Natural Resources was also briefed on the project and its development.

Aside from these government and officially designated organizations, Ku'iwalu met in local-style small talk-story sessions, beginning in 2007, engaging more than 100 individuals and groups. These groups

represented a spectrum of interests, including cultural, astronomical, environmental, and recreational. These sessions will continue until the CMP is completed.

In addition, traditional public meetings were held in Waimea, Kona and Hilo. The participants in these meetings raised a range of ideas and concerns and brought considerable passion to the issues discussed.

To ensure widespread access to all information about the CMP process, we launched a website: www.MaunaKeaCMP.com, which contains an extensive amount of information and materials about Mauna Kea, previous planning efforts and other background that will inform the decision making on the CMP. We urge you to visit the website and let us know what you think.

We also worked diligently to ensure the news media was kept informed about the CMP project, since newspapers and radio are sources of information for the majority of Hawaii Island residents. Our media outreach

effort included holding meetings with the editorial boards of daily newspapers published on the Big Island and statewide, as well as OHA's Ka Wai Ola. We also participated in an interview on Big Island NPR station Lava105 and appeared on community television station Olelo. We will continue to release all noteworthy information to the news media as events dictate.

Recently, we conducted a statewide telephone survey to obtain opinions from the wide variety of groups and individuals who make up our community. The results will be published soon and posted on our website.

COMMUNITY OUTREACH PARTICIPANTS SPEAK UP

During the community outreach we received a wide range of comments and responses from "take all the telescopes down" to "if we are going to have telescope development, it should be the best in the world." Although the responses were varied, the emotions and passions about Mauna Kea were constant. Many people, especially native Hawaiians, felt angry, hurt, about the lack of respect shown in the development on Mauna Kea. But many also felt a strong desire to find a solution to managing both existing and potential future uses on Mauna Kea, including telescope development, if it will help our young people with educational and economic opportunities.

The issue of ceded lands and why only \$1 a year is charged for the use of Mauna Kea elicited a range of opinions from native Hawaiians and non-Hawaiians alike. The degradation of the aquifer by the telescope facilities was an issue that concerned many of the Big Island participants. Others viewed the telescopes on Mauna Keas as a benefit to the island's economy, creating many jobs and opportunities for education and the scientific discoveries.



SPECIFIC PUBLIC MEETING QUESTIONS AND ANSWERS

At the public meeting, we asked a series of questions about various management issues based upon our review of past management plans, master plan, public testimonies and statements.

Q: Do you believe that everyone who accesses Mauna Kea (including tourists, astronomers and support staff, commercial tours, etc.) should be required to receive a cultural, environmental and safety orientation before going to the summit?

A: The responses received unanimously supported some form of cultural orientation or training for everyone who visits Mauna Kea. It was suggested the orientation be similar to those required when visiting the USS Arizona, Hanauma Bay, and Kaho'olawe. Although there was no agreement on the location where the orientation should be held, it was agreed that everyone should be required to take part in it.

Education was seen as the first line of defense in protecting the mountain's cultural and natural resources. And there was overwhelming agreement that Native Hawaiians, particularly Kupuna, should be involved in the development of the orientation.

There was a general consensus that visitors do not intend to be disrespectful, but they don't know what behavior is inappropriate or damaging to the environment. Providing education and information to visitors will result in more respectful and conscientious behavior toward Mauna Kea and its resources.

Q: Do you believe that science (i.e., astronomy facilities) and Hawaiian culture can co-exist on Mauna Kea? Do you believe there is room for new development on Mauna Kea, if so where?

A: Undoubtedly this was the most difficult question, as it goes to the heart of the strong feelings held by some in the community

about the telescopes on Mauna Kea.

From a cultural standpoint, many Hawaiians feel strongly the summit of Mauna Kea is the most sacred site, the Piko, of the Hawaiian people, not only on the Big Island but throughout Hawaii. The placement of any telescope on the summit was seen by some as deeply disrespectful. Among these individuals are those who would like the telescopes removed from the summit at the end of the lease term in 2033.

There were several comments from Hawaiians and non-Hawaiians who demanded that, before further development is discussed, the UH apologize or acknowledge the disrespect to the Hawaiian community that occurred as a result of telescope development.

Some Native Hawaiians talked about King Kalakaua and his initiative to bring the first telescope to Hawaii. They cited the ties between Hawaiian culture and the study of astronomy, pointing out the importance of the stars for navigation.

The majority of Hawaiians and non-Hawaiians expressed the sentiment that there is a way for some existing and new astronomy facilities to be on the mountain, as long as some of the telescopes are removed from the summit and new construction was undertaken in a culturally sensitive manner. There were many people who indicated that the University of Hawaii should demonstrate its commitment to respecting the Hawaiian culture by developing a plan to decommission older telescopes before new ones are considered.

'Imiloa was identified as a good example of how science and culture can co-exist. It was also suggested that there should be greater community use and access of the facility, especially for children.

A proposal that new telescope development should only occur in the existing footprints of decommissioned telescopes resonated strongly with many participants. Others believe that new development should occur on a new site, a place known as the

Northern Plateau, below the summit, under the condition that no Hawaiian burials are disturbed or removed and that identified cultural sites are protected.

Regarding the environment, many said it is too fragile to permit any new development, especially when there are no thorough studies on the effects of the current facilities on Mauna Kea's natural environment.

However, there were many more public comments in support of a solution that could find a place for both science and culture to co-exist on Mauna Kea.

Q: Do you believe that access should be regulated to ensure that the cultural and natural resources are preserved and protected? (It was clearly stated that access for Native Hawaiian traditional and customary practices, as protected by the Constitution, would not be adversely impacted by the CMP.)

A: There were a wide variety of responses on this question, ranging from no restriction on access, especially for local people, to rules on access that regulate the number of cars and people that access Mauna Kea. Some suggested everyone must park and take a shuttle to the summit from the visitor's center or some other location, including Department of Hawaiian Home Lands Sheep Station at Humu'ula.

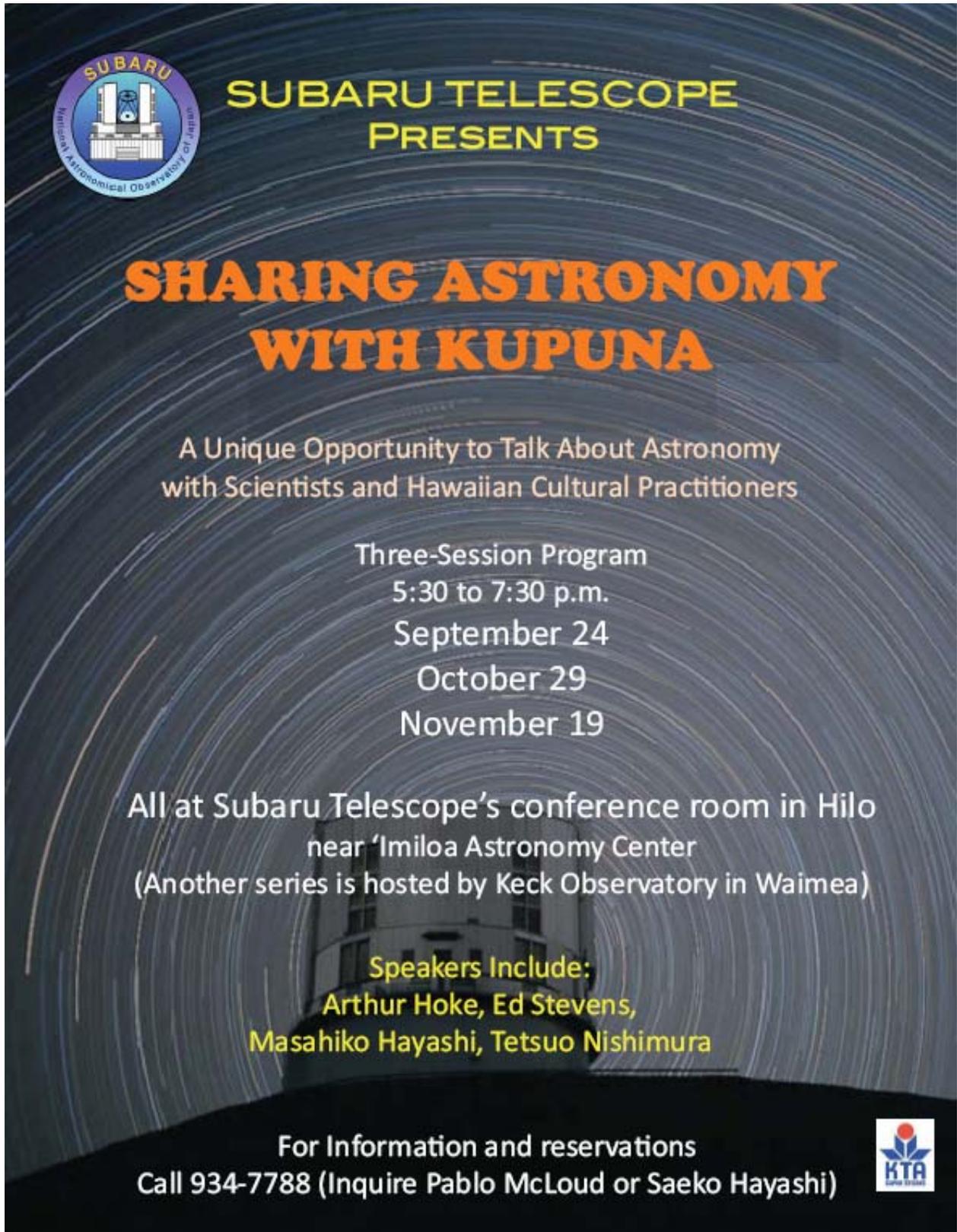
Many expressed the sentiment that something has to be done to regulate access to protect resources, while a few participants suggested charging an admission fee to non-Hawaii residents.

Although there was no consensus, there was strong sentiment that access needs to be managed to ensure that cultural and environmental resources are not adversely impacted.

Many people recommended better signage and interpretative signs so that people would understand why it was important to stay on the trail and road.



Appendix A7. Kūpuna Workshops on Astronomy



 **SUBARU TELESCOPE
PRESENTS**

**SHARING ASTRONOMY
WITH KUPUNA**

A Unique Opportunity to Talk About Astronomy
with Scientists and Hawaiian Cultural Practitioners

Three-Session Program
5:30 to 7:30 p.m.
September 24
October 29
November 19

All at Subaru Telescope's conference room in Hilo
near 'Imiloa Astronomy Center
(Another series is hosted by Keck Observatory in Waimea)

Speakers Include:
**Arthur Hoke, Ed Stevens,
Masahiko Hayashi, Tetsuo Nishimura**

For Information and reservations
Call 934-7788 (Inquire Pablo McCloud or Saeko Hayashi)



SHARING ASTRONOMY WITH KUPUNA

As the International Year of Astronomy 2009 quickly approaches, and the Subaru Telescope passes the ninth anniversary from its dedication this month, Subaru and the W. M. Keck Observatory jointly host a program in each headquarters in Hilo and Waimea, inviting respected community members to find out about the world of astronomy. In Hilo over the next three months, Subaru's base facility will be a gathering place for a talk-story series called "Sharing Astronomy with Kupuna." **Subaru** or **sumaru** is an ancient Japanese word meaning get together. The program involves a series of informal talks and interactive sessions hosted by Hawaiian cultural practitioners and Hawaii-based astronomers.

During the "Kupuna Series," Subaru astronomers will introduce their latest discoveries, the hot topics in astronomy, and newest cutting-edge technologies. Notable guests from the Hawaiian community will present an overview of Hawaiian heritage and astronomy, celestial navigation and wayfinding, and cultural beliefs and values of Mauna Kea.

The program will occur Wednesday evenings on September 24, October 29, and November 19, 2008. Each session will begin at 5:30 p.m. and will last approximately two hours. The first hour and half of the session will include talk stories and visual presentations. The last half hour will be open for more general questions and answers, with professional astronomers and cultural leaders providing information and assisting with discussion. There is no charge for the program, and light refreshments will be served courtesy of KTA Super Stores. Because seating is limited, please sign up as soon as possible.

Subaru's headquarters is in the University Park complex on the UH-Hilo campus. Situated off Komohana Street, Subaru is located at 650 North A'ohoku Place, a couple hundred yards from and mauka (mountain side) of the 'Imiloa Astronomy Center. Throughout the year, Subaru hosts programs such as the school excursion from elementary to high school classes or groups, trainings for college students or school teachers, and so forth. Public tours at the summit facility are offered during the weekdays' daytime which can be arranged through our web site.

Subaru welcomes kupuna and family members to this interchange of ideas and information. Please call 934-7788 and inquire Pablo McCloud or Saeko Hayashi for further information or to register. On Thursdays following the above Hilo sessions, Keck Observatory hosts a separate session in Waimea, and they can be reached at 881-3854 or through their website at www.keckobservatory.org. More details on the science and research at Subaru Telescope can be found at this website, www.subarutelescope.org.

September 11, 2008

Public Information and Outreach Office
Subaru Telescope
National Astronomical Observatory of Japan

Phone (808) 934-7788 (Inquire Pablo McLoud or Saeko Hayashi)

(attachment) Picture of the Dedication Ceremony at the telescope site, September 17, 1999. (Larger format picture is available upon request.)

Professor Keiichi Kodaira (then the Director General of the National Astronomical Observatory of Japan) addressed the distinguished guests from Hawai'i, the mainland USA, Japan, and other parts of the world, in front of Subaru Telescope.



Appendix A8. Outreach to Engage the Plaintiffs in the Outrigger Telescopes Lawsuit



August 25, 2008

William M. Tam
Alston Hunt Floyd & Ing
ASB Tower, 18th Floor
1001 Bishop Street
Honolulu, Hawai'i 96813

Aloha Bill:

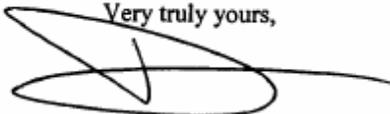
Subject: Mauna Kea Comprehensive Management Plan

In the course of the community engagement process for the Mauna Kea Comprehensive Management Plan (CMP) process, some of the plaintiffs have raised the concern that they did not feel it appropriate to participate in the CMP process so long as the University of Hawai'i was appealing Judge Hara's decision. Now that the University of Hawai'i has decided to withdraw its appeal, I am following up on our telephone conversation, asking your assistance in facilitating a meeting with the Plaintiffs and myself to discuss the CMP.

The Plaintiffs represent a very important segment of the community, in particular the Hawaiian and environmental community, and we value and welcome their input in the development of the Mauna Kea CMP. Accordingly, I would greatly appreciate your assistance in either facilitating this meeting or authorizing me to contact them directly.

Should you have any questions, please do not hesitate to contact me at 539-3583. Your assistance in this matter is greatly appreciated.

Very truly yours,



DAWN N.S. CHANG
Principal

c: Dexter K. Kaiama



March 25, 2008

William M. Tam, Esq.
Alston Hunt Floyd & Ing
1001 Bishop Street
ASB Tower, 18th Floor
Honolulu, Hawaii 96813

Dexter K. Kaiama, Esq.
Dillingham Transportation Building
735 Bishop Street, Suite 419
Honolulu, HI 96813

Julie H. China
Deputy Attorney General
Department of the Attorney General
465 S. King St., Room 300
Honolulu, Hawaii 96813

Lisa Woods Munger, Esq.
Goodsill Anderson Quinn & Stifel
1099 Alakea Street, Suite 1800
Honolulu, Hawaii 96813

Dear Counsels:

Subject: Notice of Land Board Briefing on the
Comprehensive Management Plan (CMP) for Mauna Kea

I indicated in previous conversations that I would keep you informed of any matter regarding the CMP for Mauna Kea that we brought before the Land Board. Based upon Judge Hara's decision which requires the Land Board to approve the CMP we have requested an informational briefing before the Land Board at its April 11, 2008 meeting. This will be a joint presentation with the Office of Mauna Kea Management and Ku'iwalu Consulting.

We invite and encourage you and your clients to attend the meeting and share your concerns or comments with the Land Board about the CMP. We intend to present to the Land Board the goals and objectives, the table of contents, and the community outreach planning

William M. Tam, Esq.
Dexter K. Kaimana, Esq.
Julie H. China, Esq.
Lisa Woods Munger, Esq.
March 25, 2008
Page Two

process of the CMP, as well as answer any questions that either the Land Board or the public may have regarding the CMP process.

Should you have any questions or want to discuss this matter with me before the Land Board meeting, please don't hesitate to call me at (808) 539-3583.

E Mālama Pono,

A handwritten signature in black ink, appearing to read "DAWN N.S. CHANG". The signature is stylized with a long horizontal stroke at the end.

DAWN N.S. CHANG
Principal

- c: Laura Thielen, Chairperson Board of Land and Natural Resources
Land Board Members
President David McClain, University of Hawai'i
Barry Taniguchi, Mauna Kea Management Board
Bill Stormont, Office of Mauna Kea Management

Appendix A9. Institute for Astronomy's Plans to Remove and Decommission Obsolete Telescopes

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Ku'iwalu

July 11, 2008

Dr. Rolf-Peter Kudritzki
Director, Institute for Astronomy
University of Hawai'i
2680 Woodlawn Drive
Honolulu, Hawai'i 96822

Dear Dr. Kudritzki:

Over the last several months, the Mauna Kea Comprehensive Management Team has been involved in extensive community outreach to gain a better understanding of the community's views on how Mauna Kea should be protected and managed. We have been asking hard questions about the community's view on the co-existence of Hawaiian culture and science, specifically existing and potential future development on Mauna Kea.

This question has generated intense discussion fueled with passion and emotion but a true desire to develop a comprehensive management plan that recognizes and protects the cultural integrity of Mauna Kea while continuing to support the University of Hawai'i as a premier astronomical institution in the world. There are many in the Hawaiian community who recognize the summit of Mauna Kea as one of the most culturally significant sites within the Mauna Kea Science Reserve if not all of Hawai'i. A recurrent theme by both the Hawaiian and non-Hawaiian community is that since the summit of Mauna Kea is so culturally significant, the community would like to see a specific plan that shows the removal of obsolete telescopes from the summit and decommissioning plans for each of the observatories for restoring the summit. In our view, this plan is critical to addressing the cultural concerns that have been consistently raised in our community outreach efforts.

We are aware of your report to the Legislature in 2007 on the Long Term Development of Observatory Sites on the Summit of Mauna Kea. It would be very helpful if you could update your report and provide a specific plan for decommissioning and removal of telescopes.

Your timely attention to this matter is greatly appreciated as we would like to share this information with the community in our future correspondence and public meetings. Should you have any questions, please don't hesitate to contact me at 539-3583.

Sincerely,

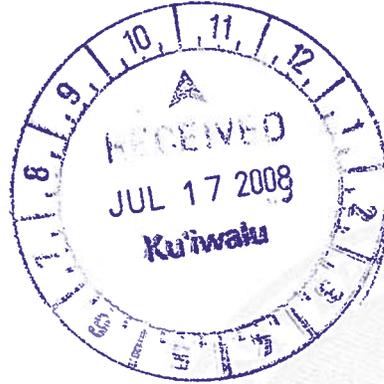
DAWN N.S. CHANG
Principal

UNIVERSITY OF HAWAII AT MĀNOA

Institute for Astronomy
Office of the Director

July 15, 2008

Ms. Dawn N. S. Chang
Principal Ku'iwalu
1003 Bishop Street
Pauahi Tower, 27th Floor
Honolulu, Hawaii 96813



Dear Ms. Chang:

Thank you for your letter dated July 11, 2008. We greatly appreciate the opportunity to address the community's concerns related to telescope development on Mauna Kea.

In December 2006, responding to a request from the Hawaii State Legislature, I as director of the Institute for Astronomy (IfA), submitted a "Report on long-term development of observatory sites on the summit of Mauna Kea". Prior to its submittal, the report was approved by the President of the University of Hawaii. The report describes a long-term development plan that would see a much smaller number of future projects than were described in the UH Master Plan of 2000, but would still maintain Hawaii's world leadership in ground-based astronomy.

The key new developments in this plan are the use of the UH 2.2m telescope site for IfA's new Pan-STARRS observatory and the Thirty-Meter Telescope (TMT) at a new site on the northwest plateau, below the summit ridge. With Pan-STARRS and an appropriate scientific participation in the TMT, and with the present large telescopes on Mauna Kea, the University of Hawaii will be able to retain its world-leading position in astronomical research.

Taking into account the enormous scientific potential of these two new projects for research at UH, the report also addresses the future of the existing facilities:

While the Master Plan of the year 2000 assumed that all existing facilities which would not be replaced by new ones would continue to exist for the next 20 years, we do not make this assumption for the new plan. It is clear that newer facilities such as Keck, Gemini, Subaru, Pan-STARRS, the UH Hilo telescope and the SMA will certainly continue to operate over the next 20 years. However, some of the others will not continue with their operation, because other aspects of astronomical observations will become more important. In such cases our plan is not to refurbish all of them but only a few and only in cases where an extremely important scientific case can be made. Otherwise, our new plan is to demolish the old facility, to clean the site and to recreate the site in a stage as it was, before the facility had been built. (It is important to note that Operating and Site Development Agreements—the contracts between UH and the telescope partners on Mauna Kea—require the cost for such reestablishment of the site in its original status have to be paid by the telescope partners). We are confident that in this way the number of observatories on Mauna Kea in 20 years from now will be smaller than now. But with all the new facilities, in particular the TMT, Hawaii will still have the very best in the world.

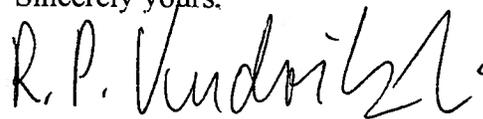
While this aspect of the report has found substantial support in the community, it has also been noted that the report is not specific about which of the facilities might be replaced or refurbished and which would not, in the event that their current operation ended before the expiration of the sublease with UH. This appears to be consistent with your observations in the community as well.

Accordingly, we present a Revised Plan that addresses this aspect. A fundamental component of our Revised Plan is that Pan-STARRS and the TMT will play a central role in future astronomical research at UH.

Currently, there are four radio telescope facilities on Mauna Kea: the Very Long Baseline Array (VLBA), the Caltech Submillimeter Observatory (CSO), the James Clerk Maxwell Telescope (JCMT) and the Submillimeter Array (SMA). Because of cultural concerns that have been raised about the location of the VLBA, the 2000 Master Plan did not include the VLBA site within the Astronomy Precinct. Therefore, should the operation of the VLBA terminate, or should an alternative site and relocation funding become available, we would not reuse this site for a new project. For the CSO, JCMT, and the SMA, the Revised Plan foresees replacing at most one of these three with a new observatory working preferably in the sub-millimeter or millimeter domain, for which Mauna Kea is well known as the best site in the northern hemisphere. This means that only one of the existing four radio observatory sites would be used in the long term for a new project resulting in possibly three of the radio telescope facilities being removed and those sites restored prior to the expiration of the lease to UH.

There are currently nine optical or infrared observatories on Mauna Kea: the two Kecks, Subaru, Gemini, Canada-France-Hawaii Telescope, NASA Infrared Telescope, United Kingdom Infrared Telescope (UKIRT), UH 2.2m (which if permitted would be replaced by Pan-STARRS, assumed to operate for only 10 years), and the UH 24-inch (which IfA has transferred to UH Hilo as the site for their instructional telescope). Here the Revised Plan is that when the operation of UKIRT comes to an end, the facility will be removed and the site restored.

Sincerely yours.



Rolf-Peter Kudritzki
Director

RPK:nll

UNIVERSITY OF HAWAII AT MĀNOA

Institute for Astronomy
Office of the Director

July 16 2008

Ms. Dawn N. S. Chang
Principal Ku'iwalu
1003 Bishop Street
Pauahi Tower, 27th Floor
Honolulu, Hawaii 96813

Dear Ms. Chang:

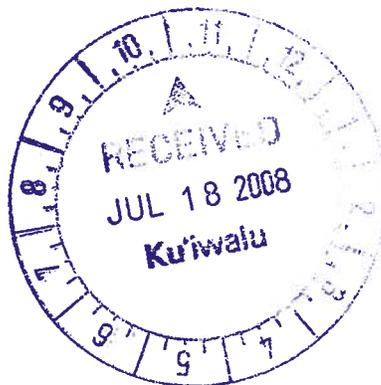
Enclosed for your information are copies of the ten letters we have sent to the Mauna Kea observatory directors asking about their plans for eventual removal and site restoration. We have asked for a response by August 22, 2008.

Sincerely yours,



Rolf-Peter Kudritzki
Director

RPK:nll
encl.



UNIVERSITY OF HAWAII AT MĀNOA

Institute for Astronomy
Office of the Director

July 16, 2008

Dr. Christian Veillet
Executive Director
Canada-France-Hawaii
65-1238 Mamalahoa Highway
Kamuela, HI 96743

Dear Dr. Veillet:

Subject: Mauna Kea Comprehensive Management Plan

As you know, the University of Hawaii (UH) is developing a Comprehensive Management Plan (CMP) for the lands on Mauna Kea managed by UH. A very important part of this effort is consultation and dialog with the local community. The CMP team, led by the consulting firm, Ku'iwalu, has undertaken a wide range of initiatives to reach all types of interested groups and individuals in every part of the community. A recurrent theme in these discussions is the question of what will happen with a telescope and its site after the sublease expires, or in the event that a facility closes before the sublease expiration for reasons such as a change in funding agency priorities. There is a concern that telescope structures could remain on the summit after a facility closes, because removal turns out to be technically too complicated and/or too expensive. There are, unfortunately, a number of examples in the history of the State of Hawaii (not related to astronomy), which make these worries understandable. The CMP team wishes to address this issue to the maximum extent possible under the circumstances. To that end, they have asked the Institute for Astronomy to approach each of the Mauna Kea Observatories with the following request for information.

The sublease between UH and the Canada-France-Hawaii Telescope Corporation for the site of the Canada-France-Hawaii Telescope (CFHT) contains two options for the disposition of the facilities in the event of termination or expiration of the sublease:

- 1) surrender to UH subject to the approval of UH and the Chairman of the Board of Land and Natural Resources
- 2) removal of the facilities and restoration of the property at the expense of CFHT.

If option 1 is not approved, then option 2 must be exercised.

By this letter we are asking you to confirm that the CFHT is aware of the technical and financial implications of option 2 and that it can guarantee its implementation, should the need arise at some point in the future. We are also asking for whatever information you can provide regarding the expected cost and source of funding for option 2. Both the confirmation of the awareness and the information about cost and anticipated funding are very important for the development of the CMP and its acceptance by the local community.

The CFHT is an outstanding facility that continues to deliver important and far-reaching scientific results. That being the case, we understand that this inquiry might seem premature and inappropriate. However, it is vitally important that the University of Hawaii and its partners on Mauna Kea address clearly the legitimate concerns raised by the community, and that we thereby demonstrate our commitment to careful long-term planning that is both environmentally and culturally sensitive.

Please be aware that the information you provide may be made public and included in the CMP. In order to keep the CMP process on schedule, we are asking for at least a preliminary response by August 22.

Thank you very much for your cooperation in responding to this request. Please do not hesitate to call me if you have questions about it.

Sincerely,

A handwritten signature in black ink that reads "Rolf-Peter Kudritzki". The signature is written in a cursive, slightly slanted style.

Rolf-Peter Kudritzki
Director

RPK:nll

UNIVERSITY OF HAWAII AT MĀNOA

Institute for Astronomy
Office of the Director

July 16, 2008

Dr. Alan T. Tokunaga
Division Chief
NASA Infrared Telescope Facility
Institute for Astronomy
2680 Woodlawn Drive
Honolulu, HI 96822

Dear Dr. Tokunaga:

Subject: Mauna Kea Comprehensive Management Plan

As you know, the University of Hawaii (UH) is developing a Comprehensive Management Plan (CMP) for the lands on Mauna Kea managed by UH. A very important part of this effort is consultation and dialog with the local community. The CMP team, led by the consulting firm, Ku‘iwalu, has undertaken a wide range of initiatives to reach all types of interested groups and individuals in every part of the community. A recurrent theme in these discussions is the question of what will happen with a telescope and its site after the sublease expires, or in the event that a facility closes before the sublease expiration for reasons such as a change in funding agency priorities. There is a concern that telescope structures could remain on the summit after a facility closes, because removal turns out to be technically too complicated and/or too expensive. There are, unfortunately, a number of examples in the history of the State of Hawaii (not related to astronomy), which make these worries understandable. The CMP team wishes to address this issue to the maximum extent possible under the circumstances. To that end, they have asked the Institute for Astronomy to approach each of the Mauna Kea Observatories with the following request for information.

The sublease between UH and NASA for the site of NASA Infrared Telescope Facility (IRTF) contains two options for the disposition of the facilities in the event of termination or expiration of the sublease:

- 1) surrender to UH subject to the approval of UH and the Chairman of the Board of Land and Natural Resources
- 2) removal of the facilities and restoration of the property at the expense of NASA.

If option 1 is not approved, then option 2 must be exercised.

By this letter we are asking you to confirm that the IRTF is aware of the technical and financial implications of option 2 and that it can guarantee its implementation, should the need arise at some point in the future. We are also asking for whatever information you can provide regarding the expected cost and source of funding for option 2. Both the confirmation of the awareness and the information about cost and anticipated funding are very important for the development of the CMP and its acceptance by the local community.

The IRTF is an outstanding facility that continues to deliver important and far-reaching scientific results. That being the case, we understand that this inquiry might seem premature and inappropriate. However, it is vitally important that the University of Hawaii and its partners on Mauna Kea address clearly the legitimate concerns raised by the community, and that we thereby demonstrate our commitment to careful long-term planning that is both environmentally and culturally sensitive.

Please be aware that the information you provide may be made public and included in the CMP. In order to keep the CMP process on schedule, we are asking for at least a preliminary response by August 22.

Thank you very much for your cooperation in responding to this request. Please do not hesitate to call me if you have questions about it.

Sincerely,

A handwritten signature in black ink that reads "Rolf-Peter Kudritzki". The signature is written in a cursive, slightly slanted style.

Rolf-Peter Kudritzki
Director

RPK:nll

July 16, 2008

Dr. Gary R. Davis
Director, Hawaii Operations
Joint Astronomy Centre
660 N. A'ohoku Place
Hilo, HI 96720

Dear Dr. Davis:

Subject: Mauna Kea Comprehensive Management Plan

As you know, the University of Hawaii (UH) is developing a Comprehensive Management Plan (CMP) for the lands on Mauna Kea managed by UH. A very important part of this effort is consultation and dialog with the local community. The CMP team, led by the consulting firm, Ku'iwalu, has undertaken a wide range of initiatives to reach all types of interested groups and individuals in every part of the community. A recurrent theme in these discussions is the question of what will happen with a telescope and its site after the sublease expires, or in the event that a facility closes before the sublease expiration for reasons such as a change in funding agency priorities. There is a concern that telescope structures could remain on the summit after a facility closes, because removal turns out to be technically too complicated and/or too expensive. There are, unfortunately, a number of examples in the history of the State of Hawaii (not related to astronomy), which make these worries understandable. The CMP team wishes to address this issue to the maximum extent possible under the circumstances. To that end, they have asked the Institute for Astronomy to approach each of the Mauna Kea Observatories with the following request for information.

The sublease between UH and the Science and Technology Facilities Council (STFC) for the site of the United Kingdom Infrared Telescope (UKIRT) contains four options for the disposition of the facilities in the event of termination or expiration of the sublease:

- 1) sale to UH
- 2) sale to a third party acceptable to UH
- 3) surrender with the approval of the Chair of the Board of Land and Natural Resources
- 4) removal of the facilities and restoration of the property at the expense of STFC.

If none of options 1 to 3 is available, then option 4 must be exercised.

By this letter we are asking you to confirm that the UKIRT is aware of the technical and financial implications of option 4 and that it can guarantee its implementation, should the need arise at some point in the future. We are also asking for whatever information you can provide regarding the expected cost and source of funding for option 4. Both the confirmation of the awareness and the information about cost and anticipated funding are very important for the development of the CMP and its acceptance by the local community.

The UKIRT is an outstanding facility that continues to deliver important and far-reaching scientific results. That being the case, we understand that this inquiry might seem premature and inappropriate. However, it is vitally important that the University of Hawaii and its partners on Mauna Kea address clearly the legitimate concerns raised by the community, and that we thereby demonstrate our commitment to careful long-term planning that is both environmentally and culturally sensitive.

Please be aware that the information you provide may be made public and included in the CMP. In order to keep the CMP process on schedule, we are asking for at least a preliminary response by August 22.

Thank you very much for your cooperation in responding to this request. Please do not hesitate to call me if you have questions about it.

Sincerely,

A handwritten signature in black ink that reads "Rolf-Peter Kudritzki". The signature is written in a cursive, slightly slanted style.

Rolf-Peter Kudritzki
Director

RPK:nl

July 16, 2008

Dr. Thomas G. Phillips
Director, Caltech Submillimeter Observatory
Mail Stop 320-47
George W. Downs Laboratory of Physics
California Institute of Technology
Pasadena, CA 91125

Dear Dr. Phillips:

Subject: Mauna Kea Comprehensive Management Plan

As you know, the University of Hawaii (UH) is developing a Comprehensive Management Plan (CMP) for the lands on Mauna Kea managed by UH. A very important part of this effort is consultation and dialog with the local community. The CMP team, led by the consulting firm, Ku'iwalu, has undertaken a wide range of initiatives to reach all types of interested groups and individuals in every part of the community. A recurrent theme in these discussions is the question of what will happen with a telescope and its site after the sublease expires, or in the event that a facility closes before the sublease expiration for reasons such as a change in funding agency priorities. There is a concern that telescope structures could remain on the summit after a facility closes, because removal turns out to be technically too complicated and/or too expensive. There are, unfortunately, a number of examples in the history of the State of Hawaii (not related to astronomy), which make these worries understandable. The CMP team wishes to address this issue to the maximum extent possible under the circumstances. To that end, they have asked the Institute for Astronomy to approach each of the Mauna Kea Observatories with the following request for information.

The sublease between UH and Caltech for the site of the Caltech Submillimeter Observatory (CSO) contains four options for the disposition of the facilities in the event of termination or expiration of the sublease:

- 1) sale to UH
- 2) surrender with the concurrence of UH
- 3) sale to a third party acceptable to UH
- 4) removal of the facilities and restoration of the property at the expense of Caltech.

If none of options 1 to 3 is satisfactorily completed within twelve months, then option 4 must be exercised.

By this letter we are asking you to confirm that the CSO is aware of the technical and financial implications of option 4 and that it can guarantee its implementation, should the need arise at some point in the future. We are also asking for whatever information you can provide regarding the expected cost and source of funding for option 4. Both the confirmation of the awareness and the information about cost and anticipated funding are very important for the development of the CMP and its acceptance by the local community.

The CSO is an outstanding facility that continues to deliver important and far-reaching scientific results. That being the case, we understand that this inquiry might seem premature and inappropriate. However, it is vitally important that the University of Hawaii and its partners on Mauna Kea address clearly the legitimate concerns raised by the community, and that we thereby demonstrate our commitment to careful long-term planning that is both environmentally and culturally sensitive.

Please be aware that the information you provide may be made public and included in the CMP. In order to keep the CMP process on schedule, we are asking for at least a preliminary response by August 22.

Thank you very much for your cooperation in responding to this request. Please do not hesitate to call me if you have questions about it.

Sincerely,

A handwritten signature in black ink that reads "Rolf-Pet Kudritzki". The signature is written in a cursive, slightly slanted style.

Rolf-Peter Kudritzki
Director

RPK:nll

July 16, 2008

Dr. Robert L. Dickman
Assistant Director, VLA/VLBA Operations
National Radio Astronomy Observatory
P. O. Box O
Socorro, NM 87801-0387

Dear Dr. Dickman:

Subject: Mauna Kea Comprehensive Management Plan

As you know, the University of Hawaii (UH) is developing a Comprehensive Management Plan (CMP) for the lands on Mauna Kea managed by UH. A very important part of this effort is consultation and dialog with the local community. The CMP team, led by the consulting firm, Ku‘iwalu, has undertaken a wide range of initiatives to reach all types of interested groups and individuals in every part of the community. A recurrent theme in these discussions is the question of what will happen with a telescope and its site after the sublease expires, or in the event that a facility closes before the sublease expiration for reasons such as a change in funding agency priorities. There is a concern that telescope structures could remain on the summit after a facility closes, because removal turns out to be technically too complicated and/or too expensive. There are, unfortunately, a number of examples in the history of the State of Hawaii (not related to astronomy), which make these worries understandable. The CMP team wishes to address this issue to the maximum extent possible under the circumstances. To that end, they have asked the Institute for Astronomy to approach each of the Mauna Kea Observatories with the following request for information.

The sublease between UH and the National Radio Astronomy Observatory (NRAO) for the site of the VLBA Antenna contains four options for the disposition of the facilities in the event of termination or expiration of the sublease:

- 1) removal of the facilities and restoration of the property at the expense of NRAO,
- 2) sale to UH,
- 3) sale to a third party, contingent upon the execution of a new Sublease and Operating and Site Development Agreement between the third party and UH,
- 4) surrender in place.

Options 2, 3, and 4 require the approval of both UH and the Department of Land and Natural Resources. If none of these three alternatives is available, then option 1 (removal and restoration) must be completed within one year.

By this letter we are asking you to confirm that the VLBA is aware of the technical and financial implications of option 1 and that it can guarantee its implementation, should the need arise at some point in the future. We are also asking for whatever information you can provide regarding the expected cost and source of funding for option 1. Both the confirmation of the awareness and the information about cost and anticipated funding are very important for the development of the CMP and its acceptance by the local community.

The VLBA is an outstanding facility that continues in the prime of its scientific life. That being the case, we understand that this inquiry might seem premature and inappropriate. However, it is vitally important that the University of Hawaii and its partners on Mauna Kea address clearly the legitimate concerns raised by the community, and that we thereby demonstrate our commitment to careful long-term planning that is both environmentally and culturally sensitive.

Please be aware that the information you provide may be made public and included in the CMP. In order to keep the CMP process on schedule, we are asking for at least a preliminary response by August 22.

Thank you very much for your cooperation in responding to this request. Please do not hesitate to call me if you have questions about it.

Sincerely,

A handwritten signature in black ink that reads "Rolf-Peter Kudritzki". The signature is written in a cursive style with a horizontal line underlining the name.

Rolf-Peter Kudritzki
Director

RPK:nl

UNIVERSITY OF HAWAII AT MĀNOA

Institute for Astronomy
Office of the Director

July 16, 2008

Dr. Taft E. Armandroff
Director, W. M. Keck Observatory
California Association for Research
in Astronomy
65-1120 Mamalahoa Highway
Kamuela, HI 96743

Dear Dr. Armandroff:

Subject: Mauna Kea Comprehensive Management Plan

As you know, the University of Hawaii (UH) is developing a Comprehensive Management Plan (CMP) for the lands on Mauna Kea managed by UH. A very important part of this effort is consultation and dialog with the local community. The CMP team, led by the consulting firm, Ku'iwalu, has undertaken a wide range of initiatives to reach all types of interested groups and individuals in every part of the community. A recurrent theme in these discussions is the question of what will happen with a telescope and its site after the sublease expires, or in the event that a facility closes before the sublease expiration for reasons such as a change in funding agency priorities. There is a concern that telescope structures could remain on the summit after a facility closes, because removal turns out to be technically too complicated and/or too expensive. There are, unfortunately, a number of examples in the history of the State of Hawaii (not related to astronomy), which make these worries understandable. The CMP team wishes to address this issue to the maximum extent possible under the circumstances. To that end, they have asked the Institute for Astronomy to approach each of the Mauna Kea Observatories with the following request for information.

The sublease between UH and the California Institute of Technology (Caltech) for the site of the W. M. Keck Observatory contains four options for the disposition of the facilities in the event of termination or expiration of the sublease:

- 1) removal of the facilities and restoration of the property at the expense of Caltech,
- 2) sale to UH,
- 3) sale to a third party, contingent upon the execution of a new Sublease and Operating and Site Development Agreement between the third party and UH,
- 4) surrender in place.

Options 2, 3, and 4 require the approval of both UH and the Department of Land and Natural Resources. If none of these three alternatives is available, then option 1 (removal and restoration) must be completed within one year.

By this letter we are asking you to confirm that Keck is aware of the technical and financial implications of option 1 and that it can guarantee its implementation, should the need arise at some point in the future. We are also asking for whatever information you can provide regarding the expected cost and source of funding for option 1. Both the confirmation of the awareness and the information about cost and anticipated funding are very important for the development of

the CMP and its acceptance by the local community.

Keck is an outstanding facility in the prime of its scientific life. That being the case, we understand that this inquiry might seem premature and inappropriate. However, it is vitally important that the University of Hawaii and its partners on Mauna Kea address clearly the legitimate concerns raised by the community, and that we thereby demonstrate our commitment to careful long-term planning that is both environmentally and culturally sensitive.

Please be aware that the information you provide may be made public and included in the CMP. In order to keep the CMP process on schedule, we are asking for at least a preliminary response by August 22.

Thank you very much for your cooperation in responding to this request. Please do not hesitate to call me if you have questions about it.

Sincerely,

A handwritten signature in black ink that reads "Rolf-Peter Kudritzki". The signature is written in a cursive, slightly slanted style.

Rolf-Peter Kudritzki
Director

RPK:nll

UNIVERSITY OF HAWAII AT MĀNOA

Institute for Astronomy
Office of the Director

July 16, 2008

Dr. Masahiko Hayashi
Director, Subaru Telescope
National Astronomical Observatory of Japan
650 N. A'ohoku Place
University Park
Hilo, HI 96720

Dear Dr. Hayashi:

Subject: Mauna Kea Comprehensive Management Plan

As you know, the University of Hawaii (UH) is developing a Comprehensive Management Plan (CMP) for the lands on Mauna Kea managed by UH. A very important part of this effort is consultation and dialog with the local community. The CMP team, led by the consulting firm, Ku'iwalu, has undertaken a wide range of initiatives to reach all types of interested groups and individuals in every part of the community. A recurrent theme in these discussions is the question of what will happen with a telescope and its site after the sublease expires, or in the event that a facility closes before the sublease expiration for reasons such as a change in funding agency priorities. There is a concern that telescope structures could remain on the summit after a facility closes, because removal turns out to be technically too complicated and/or too expensive. There are, unfortunately, a number of examples in the history of the State of Hawaii (not related to astronomy), which make these worries understandable. The CMP team wishes to address this issue to the maximum extent possible under the circumstances. To that end, they have asked the Institute for Astronomy to approach each of the Mauna Kea Observatories with the following request for information.

The sublease between UH and the National Astronomical Observatory of Japan (NAOJ) for the site of the Subaru Telescope contains four options for the disposition of the facilities in the event of termination or expiration of the sublease:

- 1) removal of the facilities and restoration of the property at the expense of NAOJ,
- 2) sale to UH,
- 3) sale to a third party, contingent upon the execution of a new Sublease and Operating and Site Development Agreement between the third party and UH,
- 4) surrender in place.

Options 2, 3, and 4 require the approval of both UH and the Department of Land and Natural Resources. If none of these three alternatives is available, then option 1 (removal and restoration) must be completed within one year.

By this letter we are asking you to confirm that Subaru Telescope is aware of the technical and financial implications of option 1 and that it can guarantee its implementation, should the need arise at some point in the future. We are also asking for whatever information you can provide regarding the expected cost and source of funding for option 1. Both the confirmation of the awareness and the information about cost and anticipated funding are very important for the development of the CMP and its acceptance by the local community.

2680 Woodlawn Drive, Honolulu, Hawaii 96822

An Equal Opportunity/Affirmative Action Institution

Appendix A9: IfA Telescope Plans

A9-19

April 2009

The Subaru Telescope is an outstanding facility in the prime of its scientific life. That being the case, we understand that this inquiry might seem premature and inappropriate. However, it is vitally important that the University of Hawaii and its partners on Mauna Kea address clearly the legitimate concerns raised by the community, and that we thereby demonstrate our commitment to careful long-term planning that is both environmentally and culturally sensitive.

Please be aware that the information you provide may be made public and included in the CMP. In order to keep the CMP process on schedule, we are asking for at least a preliminary response by August 22.

Thank you very much for your cooperation in responding to this request. Please do not hesitate to call me if you have questions about it.

Sincerely,

A handwritten signature in black ink that reads "Rolf-Peter Kudritzki". The signature is written in a cursive, slightly slanted style.

Rolf-Peter Kudritzki
Director

RPK:nll

UNIVERSITY OF HAWAII AT MĀNOA

Institute for Astronomy
Office of the Director

July 16, 2008

Dr. Douglas A. Simons
Director, Frederick C. Gillett Gemini Observatory
Northern Operations Center
670 N. A'ohoku Place
University Park
Hilo, HI 96720-2700

Dear Dr. Simons:

Subject: Mauna Kea Comprehensive Management Plan

As you know, the University of Hawaii (UH) is developing a Comprehensive Management Plan (CMP) for the lands on Mauna Kea managed by UH. A very important part of this effort is consultation and dialog with the local community. The CMP team, led by the consulting firm, Ku'iwalu, has undertaken a wide range of initiatives to reach all types of interested groups and individuals in every part of the community. A recurrent theme in these discussions is the question of what will happen with a telescope and its site after the sublease expires, or in the event that a facility closes before the sublease expiration for reasons such as a change in funding agency priorities. There is a concern that telescope structures could remain on the summit after a facility closes, because removal turns out to be technically too complicated and/or too expensive. There are, unfortunately, a number of examples in the history of the State of Hawaii (not related to astronomy), which make these worries understandable. The CMP team wishes to address this issue to the maximum extent possible under the circumstances. To that end, they have asked the Institute for Astronomy to approach each of the Mauna Kea Observatories with the following request for information.

The sublease between UH and the National Science Foundation (NSF) for the site of the Frederick C. Gillett Gemini North Telescope contains four options for the disposition of the facilities in the event of termination or expiration of the sublease:

- 1) removal of the facilities and restoration of the property at the expense of NSF,
- 2) sale to UH,
- 3) sale to a third party, contingent upon the execution of a new Sublease and Operating and Site Development Agreement between the third party and UH,
- 4) surrender in place.

Options 2, 3, and 4 require the approval of both UH and the Department of Land and Natural Resources. If none of these three alternatives is available, then option 1 (removal and restoration) must be completed within one year.

By this letter we are asking you to confirm that Gemini is aware of the technical and financial implications of option 1 and that it can guarantee its implementation, should the need arise at some point in the future. We are also asking for whatever information you can provide regarding the expected cost and source of funding for option 1. Both the confirmation of the awareness and the information about cost and anticipated funding are very important for the development of

the CMP and its acceptance by the local community.

Gemini is an outstanding facility in the prime of its scientific life. That being the case, we understand that this inquiry might seem premature and inappropriate. However, it is vitally important that the University of Hawaii and its partners on Mauna Kea address clearly the legitimate concerns raised by the community, and that we thereby demonstrate our commitment to careful long-term planning that is both environmentally and culturally sensitive.

Please be aware that the information you provide may be made public and included in the CMP. In order to keep the CMP process on schedule, we are asking for at least a preliminary response by August 22.

Thank you very much for your cooperation in responding to this request. Please do not hesitate to call me if you have questions about it.

Sincerely,

A handwritten signature in black ink that reads "Rolf-Peter Kudritzki". The signature is written in a cursive, slightly slanted style.

Rolf-Peter Kudritzki
Director

RPK:nll

UNIVERSITY OF HAWAII AT MĀNOA

Institute for Astronomy
Office of the Director

July 16, 2008

Dr. Raymond Blundell
Director, Submillimeter Array
Smithsonian Astrophysical Observatory
60 Garden Street
Cambridge, MA 02138

Dear Dr. Blundell:

Subject: Mauna Kea Comprehensive Management Plan

As you know, the University of Hawaii (UH) is developing a Comprehensive Management Plan (CMP) for the lands on Mauna Kea managed by UH. A very important part of this effort is consultation and dialog with the local community. The CMP team, led by the consulting firm, Ku'iwalu, has undertaken a wide range of initiatives to reach all types of interested groups and individuals in every part of the community. A recurrent theme in these discussions is the question of what will happen with a telescope and its site after the sublease expires, or in the event that a facility closes before the sublease expiration for reasons such as a change in funding agency priorities. There is a concern that telescope structures could remain on the summit after a facility closes, because removal turns out to be technically too complicated and/or too expensive. There are, unfortunately, a number of examples in the history of the State of Hawaii (not related to astronomy), which make these worries understandable. The CMP team wishes to address this issue to the maximum extent possible under the circumstances. To that end, they have asked the Institute for Astronomy to approach each of the Mauna Kea Observatories with the following request for information.

The sublease between UH and the Smithsonian Institution (Smithsonian) for the site of the Submillimeter Array (SMA) contains four options for the disposition of the facilities in the event of termination or expiration of the sublease:

- 1) removal of the facilities and restoration of the property at the expense of Smithsonian,
- 2) sale to UH,
- 3) sale to a third party, contingent upon the execution of a new Sublease and Operating and Site Development Agreement between the third party and UH,
- 4) surrender in place.

Options 2, 3, and 4 require the approval of both UH and the Department of Land and Natural Resources. If none of these three alternatives is available, then option 1 (removal and restoration) must be completed within one year.

By this letter we are asking you to confirm that the SMA is aware of the technical and financial implications of option 1 and that it can guarantee its implementation, should the need arise at some point in the future. We are also asking for whatever information you can provide regarding the expected cost and source of funding for option 1. Both the confirmation of the awareness and the information about cost and anticipated funding are very important for the development of the CMP and its acceptance by the local community.

The SMA is an outstanding facility in the prime of its scientific life. That being the case, we understand that this inquiry might seem premature and inappropriate. However, it is vitally important that the University of Hawaii and its partners on Mauna Kea address clearly the legitimate concerns raised by the community, and that we thereby demonstrate our commitment to careful long-term planning that is both environmentally and culturally sensitive.

Please be aware that the information you provide may be made public and included in the CMP. In order to keep the CMP process on schedule, we are asking for at least a preliminary response by August 22.

Thank you very much for your cooperation in responding to this request. Please do not hesitate to call me if you have questions about it.

Sincerely,

A handwritten signature in black ink that reads "Rolf-Peter Kudritzki". The signature is written in a cursive, slightly slanted style.

Rolf-Peter Kudritzki
Director

RPK:nl



Ms. Dawn S. Chang,
Principal Ku'iwalu,
by email.

27 July 2008

Dear Ms Chang,

Revised IfA Plan for Future Development

I am writing to amplify slightly on the letter sent to you by Professor Kudritzki on 15th July. It was stated in that letter that, should UKIRT cease operations before the expiration of the general lease in 2033, the IfA would not seek to re-use the site for astronomy. That decision is entirely the University's prerogative as holder of the general lease.

I want to emphasize that, whilst it is possible that UKIRT will cease operations before 2033, there is no fixed timeline for this. UKIRT is owned by a scientific research body in the United Kingdom, and the future of the facility is one element of that organization's forward strategic planning. I can confirm that UKIRT is not scheduled for closure within the organization's current planning horizon; indeed, as its Director, I believe it has the potential to continue operating for many years at the forefront of infrared astronomy.

I trust this helps to clarify the situation. Should you require any further information pertaining to these issues, please do not hesitate to ask.

Kindest regards,

Professor Gary Davis,
Director JAC.

cc: Prof. Kudritzki, IfA
Ms S. Nagata, OMKM
Mr B. Taniguchi, MKMB

Joint Astronomy Centre

660 N. A'ohōkū Place, University Park
Hilo, Hawaii 96720-2700, USA

<http://www.jach.hawaii.edu/>

Tel: +1 808 961 3756 (Central)
Fax: +1 808 961 6516
+1 808 969 6591 (Directorate Office)

Professor Gary R. Davis *BSc MSc DPhil*
Director, Joint Astronomy Centre
James Clerk Maxwell Telescope
United Kingdom Infrared Telescope

Tel: +1 808 969 6504 (Direct)
Email: g.davis@jach.hawaii.edu

U N I V E R S I T Y O F H A W A I ' I A T M Ā N O A

Institute for Astronomy
Office of the Director

August 28, 2008

Ms. Dawn N. S. Chang
Principal Ku'iwalu
1003 Bishop Street
Pauahi Tower, 27th Floor
Honolulu, Hawaii 96813

Dear Ms. Chang:

Enclosed for your information are copies of the eight responses we have received to my July 16 letter asking the observatories about their plans for eventual removal and site restoration. We have heard from all of the observatories except for VLBA. Note that the letter from Professor Davis addresses both UKIRT and JCMT.

Sincerely yours,



Rolf-Peter Kudritzki
Director

RPK:nll
encl.



6 August 2008

Dr. Rolf-Peter Kudritzki
Director
Institute for Astronomy
University of Hawai'i at Manoa
2680 Woodlawn Drive
Honolulu, HI 96822

2008
DIRECTOR
INSTITUTE FOR ASTRONOMY

Dear Dr. Kudritzki,

Subject: Mauna Kea Comprehensive Management Plan

In response to your letter dated July 16, 2008 inquiring about CFHT's potential obligation to remove its facilities on Mauna Kea and restoring the property at its expense, I am pleased to let you know that this issue is well known to the CFHT Corporation.

Very early on in my directorship, I looked thoroughly at all the options for the future of CFHT, including the one I liked the least, i.e. the closure of the telescope. I asked for a quote from a demolition company located on Oahu, Island Demo Inc. (<http://www.islanddemo.com/>) which looked at the drawings of the summit facility and pictures of the construction, and visited the site on Mauna Kea. The quote came to approximately \$6M, with a strong warning on possible substantial additional cost for cleaning soil contamination that could be found once the facility is removed (a problem often encountered at industrial sites). This quote was issued back in 2004, and corresponded at the time to a one-year operating budget of the Corporation.

I asked at that time to present the observatory at an MKMB meeting, as a first courtesy visit. I outlined not only the current and planned activities of CFHT, but also the various scenarios for the future, including the closure and restoration of the site.

Since then, I have kept in mind that the demolition cost would be the equivalent of one year of operation of the facility. So, the owners of the Corporation should think of the cleaning cost as one year of funding once the observatory is closed.

This cost also happens to be the value of CFHT's property in Waimea, which is a nice piece of land for business use in town. For CFHT, the sale of the Corporation's assets could therefore pay for the cleanup of its Mauna Kea site.

I hope that this information is helpful. Please do not hesitate to come back to me, should you need more information.

Aloha,

A handwritten signature in black ink, appearing to read 'Christian Veillet', written over a large, stylized scribble.

Christian Veillet
Executive Director

CV/ms
File: 1920.02/1116.05

XC: RF
orig file

National Aeronautics and Space Administration
Headquarters
Washington, DC 20546-0001



AUG 14 2008

AUG 13 2008

Reply to Attn of: Planetary Division

DIRECTOR
INSTITUTE FOR ASTRONOMY

Professor Rolf-Peter Kudritzki
Institute for Astronomy
2680 Woodlawn Ave.
Honolulu, Hawaii 96822

Dear Professor Kudritski:

Through the IRTF Director, Alan Tokunaga, NASA has received your letter date July 16, 2008, and related recent email communications from Alan Tokunaga of your staff at UH. NASA has also reviewed the November, 1974 Sublease agreement between the University of Hawaii and the agency regarding the NASA Infrared Telescope Facility (IRTF), and has taken into consideration the needs you have expressed regarding information for the Mauna Kea Comprehensive Management Plan.

Your letter of 16 July references the sublease agreement with respect to two (2) options "for the disposition of the facilities in the event of termination or expiration of the sublease:

- 1) surrender to UH subject to the approval of UH and the Chairman of the Board of Land and Natural Resources
- 2) removal of the facilities and restoration of the property at the expense of NASA"

Your letter also seeks that NASA "confirm that the IRTF is aware of the technical and financial implications of Option 2 and that it can guarantee its implementation," and also seeks "whatever information [NASA] can provide regarding the expected cost and source of funding" for "option 2." You letter also indicates that "information [provided by NASA] may be made public and included in the CMP."

In review of the 1974 sublease agreement, it is clear subparts "VII SURRENDER," and "XII TITLE TO FACILITIES, ALTERATIONS, [etc]" are applicable to the potential termination or abandonment by NASA of the Mauna Kea/IRFT site.

Since at this time NASA has no plans for termination or abandonment of the IRFT and no studies have been done related to such action, NASA is not in a position to provide any information about the potential costs in the event of termination because such costs have not been quantified. NASA also points out that, consistent with language in subpart XII of the

sublease, financial obligations associated with the IRFT are “subject to the availability of appropriated funding,” in other words, congressional approval for the expenditure of taxpayer dollars.

Nonetheless, NASA does represent that it will honor the terms of the sublease in the event of termination or abandonment of the site.

Sincerely,

A handwritten signature in black ink, appearing to read "James L. Green", with a long horizontal flourish extending to the right.

James L. Green, Director
Planetary Division

cc: Alan Tokunaga, Philippe Crane, Richard McCarthy



Dr R-P Kudritzki, Director,
Institute for Astronomy,
by email.

22 July 2008

Dear Professor Kudritzki,

Mauna Kea Comprehensive Management Plan

Thank you for your letters dated 16th July, pertaining to the eventual dispositions of JCMT and UKIRT. I appreciate fully the CMP team's need for visibility of these arrangements and it is my pleasure to provide you with the following information.

Both telescopes are managed by the Science and Technology Facilities Council (STFC) of the United Kingdom. I hereby confirm that STFC is fully cognisant of its obligation, should none of the other options specified in the sub-lease prove possible, to remove the facilities and restore the properties. Although neither of the facilities is scheduled for closure within the current planning horizon, STFC has nevertheless made advance provision for these decommissioning costs. I can state unequivocally that STFC will, consistent with the requirements of the sub-lease, meet the full cost of removing the observatories and restoring the sites.

The amount of this provision is based on a quotation which was provided to us in 2006 by a private contractor following a tender exercise. I am regrettably unable to provide you with public details of the expected cost since this quotation was provided to us on a commercial-in-confidence basis. I can nevertheless offer you my complete assurance that STFC has made provision for the costs of decommissioning based on a sound engineering assessment of the requirements.

I trust this information will satisfy your requirements. Please do not hesitate to contact me should you require anything further.

Kindest regards,

Professor Gary Davis,
Director JAC.

Joint Astronomy Centre

660 N. A'ohōkū Place, University Park
Hilo, Hawaii 96720-2700, USA

<http://www.jach.hawaii.edu/>

Tel: +1 808 961 3756 (Central)
Fax: +1 808 961 6516
+1 808 969 6591 (Directorate Office)

Professor Gary R. Davis *BSc MSc DPhil*
Director, Joint Astronomy Centre
James Clerk Maxwell Telescope
United Kingdom Infrared Telescope

Tel: +1 808 969 6504 (Direct)
Email: g.davis@jach.hawaii.edu



CALIFORNIA INSTITUTE OF TECHNOLOGY

GEORGE W. DOWNS LABORATORY OF PHYSICS 320-47
PASADENA, CALIFORNIA 91125-4700

RECEIVED
AUG 25 2008
DIRECTOR
INSTITUTE FOR ASTRONOMY

August 21, 2008

Rolf-Peter Kudritzki, Director
Institute for Astronomy University of Hawaii at Manoa
2680 Woodlawn Drive
Honolulu, HI 96822

Dear Dr. Kudritzki:

This letter is in response to your letter dated July 16, 2008 regarding the Mauna Kea Comprehensive Management Plan. You requested that we provide you with certain information regarding the removal of the facilities and restoration of the property at the termination or expiration of the Sublease between University of Hawaii and Caltech.

As you correctly point out, Caltech has a sublease with the University of Hawaii for the site of the Caltech Submillimeter Observatory, and that sublease contains provisions regarding the disposition of the facilities in the event of termination or expiration of the Sublease. Caltech also signed an operating agreement with the University of Hawaii in which the parties agree that the facilities are to be disposed of according to the provisions of the sublease. One option in the event of termination or expiration of the sublease is the removal of the facilities and restoration of the property.

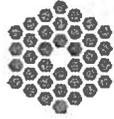
We confirm that we are aware of the technical and financial implications of the removal/restoration option in the event of termination or expiration of the sublease. Consistent with Caltech's legal obligations set forth in the sublease and the operating agreement, if the removal/restoration option becomes necessary, we are able to guarantee its implementation. Caltech will be the source of funding for the removal of the facilities and restoration of the property.

Sincerely,

T. G. Phillips
Director, Caltech Submillimeter Observatory

TGP:smc

xc: D. Currie, Vice President for Business & Finance
B. T. Soifer, Director, Spitzer Science Center
K. Dolan, Office of the General Counsel



W. M. KECK OBSERVATORY

On the summit of Mauna Kea, Island of Hawaii

August 22, 2008

Dr. Rolf-Peter Kudritzki
Director, Institute for Astronomy
University of Hawaii
2680 Woodlawn
Honolulu, Hawaii 96822

Dear Rolf,

This letter is in response to your letter dated July 16, 2008 regarding the Mauna Kea Comprehensive Management Plan. You requested that we provide you with certain information regarding the sublease between University of Hawaii and the California Institute of Technology (Caltech).

As you correctly point out in your letter, Caltech has a sublease with the University of Hawaii for the site of the W. M. Keck Observatory, and that sublease contains provisions regarding the disposition of the facilities in the event of termination or expiration of the Sublease. One option in the event of termination or expiration of the sublease is the removal of the facilities and restoration of the property within one year from the termination or expiration of the Sublease. Caltech and the University of California (UC) also signed operating agreements with the University of Hawaii in which the parties agree that the facilities are to be disposed of according to the terms of the sublease.

We confirm that we are aware of the technical and financial implications of the removal/restoration option in the event of termination or expiration of the sublease. Consistent with Caltech and UC's legal obligations set forth in the sublease and operating agreements, if the removal/restoration option becomes necessary, we are able to guarantee its implementation. Caltech and University of California will be the source of funding for removal of the facilities and restoration of the property.

Sincerely,

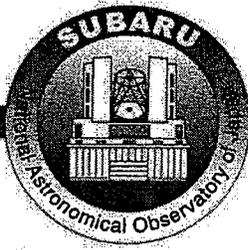
Taft Armandroff
Director, W. M. Keck Observatory

cc:

Edward Stone, Chair, California Association for Research in Astronomy
George Blumenthal, Vice Chair, California Association for Research in Astronomy

Tel: 808.885.7887 • Fax: 808.885.4464

Headquarters: 65-1120 Mamalahoa Highway, Kamuela, HI 96743 www.keckobservatory.org



Subaru Telescope

National Astronomical Observatory of Japan
650 North A'ohoku Place, Hilo, Hawaii 96720, U.S.A.

August 18, 2008

Dr. Rolf-Peter Kudritzki
Director
Institute for Astronomy
University of Hawaii
2680 Woodlawn Drive
Honolulu, HI 96822-1839

RECEIVED
AUG 19 2008

DIRECTOR
INSTITUTE FOR ASTRONOMY

Dear Dr. Kudritzki:

This is a reply to your letter regarding the "Mauna Kea Comprehensive Management Plan" dated July 16, 2008. You asked us to confirm that Subaru Telescope is aware of technical and financial implications in the event of termination or expiration of the sublease and that the National Astronomical Observatory of Japan (NAOJ) must remove the facilities and restore the property at its own expense within one year.

I have confirmed with the NAOJ administration that it is fully aware of its responsibility and it guarantees the removal of the facilities and restoration of the property, should the need arise at some point in the future.

Regarding the expected cost and source of funding, NAOJ will provide the funds for the necessary cost, which is expected to be more than US\$10M. Since this is a significant amount, we need to ask you to give us ample time for securing the funds prior to the implementation.

It is our pleasure that the Subaru telescope is producing world frontier scientific results and no one doubts that Mauna Kea is essential for our successful achievements. We would like to express, at this time, our sincere appreciation to the University of Hawaii and to the local community on the Big Island for making this happen.

Sincerely yours,

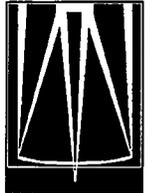
Masahiko Hayashi
Director, Subaru Telescope
National Astronomical Observatory of Japan

CC: Shoken M. Miyama, Director-General



GEMINI OBSERVATORY

Office of the Director
Gemini Observatory: Teaching Humanity about the Universe



Northern Operations Center
670 N. A'ohoku Place
Hilo, Hawai'i 96720

Phone: (808) 974-2514
Fax: (808) 974-2599
Email: dsimons@gemini.edu

To: Rolf-Peter Kudritzki, Director, UH Institute for Astronomy
From: Doug Simons, Director, Gemini Observatory
Date: 12 August 2008
Subj: Reply to your letter regarding the CMP

Dear Rolf –

I am writing in response to your letter to me dated 16 July 2008 regarding the CMP process and long-term plans for Gemini in the context of the expiration of our sublease on the summit of Mauna Kea. For reference, you noted 4 options in your letter including –

- 1) Removal of the facilities and restoration of the property at the expense of the NSF
- 2) Sale to UH
- 3) Sale to a third party, contingent upon the execution of a new Sublease and OSDA between that third party and UH
- 4) Surrender in place

It is important to emphasize that the agreement authorizing Gemini's use of a portion of the Mauna Kea science reserve for the Gemini-N telescope is formalized by our OSDA, which is an agreement between UH and our executive agency, the NSF. Upon receiving your letter I therefore contacted the NSF about your query and asked Gemini's engineering team for a rough estimate of the cost (2008 dollars) of deconstructing Gemini-N. Regarding the latter, we estimate a cost of USD9,000,000 to remove the entire facility from the summit and restore the original grade on the site. Of the options listed above, the NSF represented to me that option 4 is certainly the least desirable, given their sensitivities to Hawaiian interests and broader concern for the environment on Mauna Kea. Options 2 and 3 are somewhat speculative and certainly have not been explored in the relatively young lifetime of Gemini-N, which only entered science operations in 2000. Option 1 (removal of the facilities) would require consideration of all the Gemini Partner agencies, which are all stakeholders in the Gemini-N facility under our International Agreement. Any decision to execute option 1 would therefore be contingent upon those discussions and the availability of funds to conduct the deconstruction of Gemini-N. An absolute "guarantee" to execute option 1 is therefore not possible at this point as it would, at a minimum, require funding commitments that to date have not been sought from our funding agencies. Nonetheless I have confidence the NSF would work diligently on behalf of the Gemini partnership to find a mutually agreed solution, in the context of the current OSDA, in the event our sublease is terminated or expires.

Aloha,

Douglas A. Simons
Director, Gemini Observatory

Cc: Wayne van Citters, Craig Foltz

Date: Fri, 15 Aug 2008 14:16:51 -0400
From: Ray Blundell <rblundell@cfa.harvard.edu>
To: Rolf Peter Kudritzki <kud@ifa.hawaii.edu>
Cc: Dr. Ray Blundell <rblundell@cfa.harvard.edu>, Dr. George Nystrom <gnystrom@cfa.harvard.edu>
Subject: Eventual clearing of the SMA site

Dear Rolf,

I discussed your request with Charles Alcock (SAO Director) and with Paul Ho (ASIAA Director) and subsequently asked George Nystrom to take a look at how we might remove the SMA from Mauna Kea should the need arise following eventual closure of the observatory. Below please find a draft summary of his findings. With regards to a source of funding for eventual removal of the SMA, Charles has contacted SI Washington for advice. However, we believe that SI (and ASIAA) will take any responsibilities they have in this regard very seriously. We are close to finalizing a cost estimate for complete removal

Sincerely,

Ray

Below we outline a number of possible options for property disposition of the Smithsonian Institution's Submillimeter Array in the event of eventual closure of the observatory. We are currently making cost estimates for we are currently costing all the options, starting with complete removal. We would appreciate guidance as to what other options might prove acceptable.

Antennas:

We have 8 antennas which will be dis-assembled one at a time and transported down to a holding area at sea level. The procedure will be the reverse of their construction and deployment.

Antenna Transporter Forklifts etc:

The transporter will be dis-assembled and transported down to a holding area at sea level. The forklifts and other heavy equipment will also be transported down to a holding area at sea level and would likely be

placed on the government surplus property list.

Antenna pads:

Complete removal:

The Antenna Pad removal will require excavation, demolition and transport of debris to a refuse site. There are 24 pads all of which have up to 20-30 tons of subsurface concrete. The removal all this material will cause a significant environmental impact and the need to bring new material to back fill and restore the pad area along with its access road.

Optional approach:

The Pads have an approximate above ground projection of about one foot, over a diameter of about nine feet. As an alternative to complete removal, we recommend demolishing the above ground projection to a subsurface level of 2 feet. Removing all the debris and filling and grading the pad area to the natural terrain.

Pad cable runs:

Each Pad location has an underground conduit and a subsurface power cable. The conduit is used for sensitive fiber optic cables and other electrical lines. The power cables are copper wire with protective shields for sub-surface burial. The conduit is buried 3-4 meters below grade and has several junction boxes to allow distribution to several locations. The junction boxes are above ground. The power cables have been buried in a simple trench system.

Complete removal:

Complete removal will require extracting the conduit and demolishing the junction boxes and back filling and grading to the natural terrain. This is true also for the power cables.

Alternative option:

Leave the subsurface conduit and power lines in place and remove only

the junction boxes. This option will have significantly less environmental impact on the summit.

Control building and high bay:

Complete Removal:

This would include removal of all contents, demolishing the structures, foundations and pavement.

Alternative Option:

A property transfer to a federal or state agency. The building contents could be discussed with the recipient and their proper transfer or disposal could be arranged. The high bay building is ideal for storing HP summit equipment (road grader, snow equipment and safety vehicle). The control building could be used as a Ranger station and emergency response area.

Appendix A10. Association of Hawaiian Civic Clubs Resolutions

***ASSOCIATION OF HAWAIIAN
CIVIC CLUBS
A RESOLUTION***

08-47

**URGING THE STATE OF HAWAII, BOARD OF LAND AND NATURAL
RESOURCES, TO APPROVE THE COMPREHENSIVE MANAGEMENT
PLAN COVERING THE LANDS LEASED TO THE UNIVERSITY
OF HAWAII ON MAUNAKEA MOUNTAIN**

WHEREAS, the State of Hawai`i laws defines a management plan as a comprehensive plan for carrying out multiple land uses; and Maunakea has multiple land use issues that are in need of a comprehensive land use management plan; and

WHEREAS, the lands leased to the University of Hawai`i on Maunakea mountain have been leased to the University of Hawai`i until 2033; and

WHEREAS, the Institute for Astronomy, under the University of Hawai`i, Manoa, was tasked with the responsibility for the "management" of the area covered by the lease agreement; and

WHEREAS, those management activities had caused concern amongst the Hawaiian communities of Hawai`i Island, which resulted in a "Master Plan" being approved in 2000 by the University of Hawai`i Board of Regents; and

WHEREAS, the Office of Mauna Kea Management, an entity of the University of Hawai`i, Hilo was created, and has been functioning since 2000 without adequate authority of a "Comprehensive Management Plan", but the Office of Mauna Kea Management has formulated a comprehensive management plan; and

WHEREAS, the Office of Mauna Kea Management's Comprehensive Management Plan builds on the previous management and master plans to update the management strategies for the diverse range of activities and uses such as astronomy, cultural and religious activities, recreational and commercial activities, scientific research, and includes comprehensive components to manage the Cultural Resources, Historical Resources, and the Natural Resources on Maunakea mountain; and

WHEREAS, the Cultural, Historical, and Natural resources are not being adequately preserved and protected, primarily because of the absence of properly written, and enforced rules and regulations, to cover the lands on Maunakea mountain leased to the University of Hawai`i;

NOW, THEREFORE, BE IT RESOLVED by the Association of Hawaiian Civic Clubs at its 49th Annual Convention at Nukoli`i, Kaua`i, Hawai`i, this 24th day of October 2008, that it

Kaua`i-2008 0101

strongly urges the State of Hawai`i, Board of Land and Natural Resources, approve a Comprehensive Management Plan covering the lands leased to the University of Hawai`i on Maunakea Mountain; and

BE IT FURTHER RESOLVED, that a certified copy of this Resolution be transmitted to the Governor of the State of Hawai`i, the Chairperson and members of the Board of Land and Natural Resources, and to the President of the Senate and the Speaker of the House of Representatives of the Legislature of the State of Hawai`i.



The undersigned hereby certifies that the foregoing Resolution was duly adopted on the 24th day of October 2008, at the 49th Annual Convention of the Association of Hawaiian Civic Clubs at Nukoli`i, Kaua`i, Hawai`i

Simona Han

President

***ASSOCIATION OF HAWAIIAN
CIVIC CLUBS
A RESOLUTION***

08-48

**URGING THE LEGISLATURE OF THE STATE OF HAWAII, TO
AUTHORIZE THE OFFICE OF MAUNA KEA MANAGEMENT, AN
ENTITY OF THE UNIVERSITY OF HAWAII, HILO, TO DEVELOP
ADMINISTRATIVE RULES COVERING THE LANDS LEASED
TO THE UNIVERSITY OF HAWAII ON MAUNAKEA MOUNTAIN**

WHEREAS, a portion of the lands on Maunakea mountain have been leased to the University of Hawai`i until 2033; and

WHEREAS, the Institute for Astronomy, under the University of Hawai`i, Manoa, was tasked with the responsibility for the "management" of the area covered by the lease agreement; and

WHEREAS, those management activities had caused concern amongst the Hawaiian communities of Hawai`i Island, which resulted in a "Master Plan" being approved in 2000 by the University of Hawai`i Board of Regents; and

WHEREAS, the Office of Mauna Kea Management, an entity of the University of Hawai`i, Hilo, was created, and has been functioning since 2000 without adequate authority of Administrative Rules and Regulations; and

WHEREAS, the Cultural, Historical, and Natural resources are not being adequately preserved and protected, primarily because of the absence of properly written, and enforced rules and regulations, to cover the lands leased to the University of Hawai`i on Maunakea mountain; and

WHEREAS, the Office of Mauna Kea Management has undertaken the development of a Comprehensive Management plan for those leased lands atop Maunakea, which includes components for the comprehensive management of Cultural, Historical, and Natural resources as well;

NOW, THEREFORE, BE IT RESOLVED by the Association of Hawaiian Civic Clubs at its 49th Annual Convention at Nukoli`i, Kaua`i, Hawai`i, this 24th day of October 2008, that it strongly urges the Legislature of the State of Hawai`i, to authorize the Office of Mauna Kea Management, an entity of the University of Hawai`i, Hilo, to develop Administrative Rules covering the lands leased to the University of Hawai`i on Maunakea Mountain; and

Kaua`i-2008 0103

BE IT FURTHER RESOLVED, that a certified copy of this Resolution be transmitted to the Governor of the State of Hawai`i, the President of the Senate and the Speaker of the House of Representatives of the Legislature of the State of Hawai`i, and the Mayor of the County of Hawai`i.



The undersigned hereby certifies that the foregoing Resolution was duly adopted on the 24th day of October 2008, at the 49th Annual Convention of the Association of Hawaiian Civic Clubs at Nukoli`i, Kaua`i, Hawai`i

Simonu Huan

President

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