



UNIVERSITY of HAWAI'I\*  
CENTER FOR MAUNAKEA  
STEWARDSHIP

Annual Report to  
the BLNR  
February 24, 2023

University of Hawai'i Hilo  
Center for Maunakea Stewardship  
Maunakea Comprehensive Management Plan  
2022 Annual Progress Report

Prepared for  
The Board of Land and Natural Resources  
State of Hawai'i



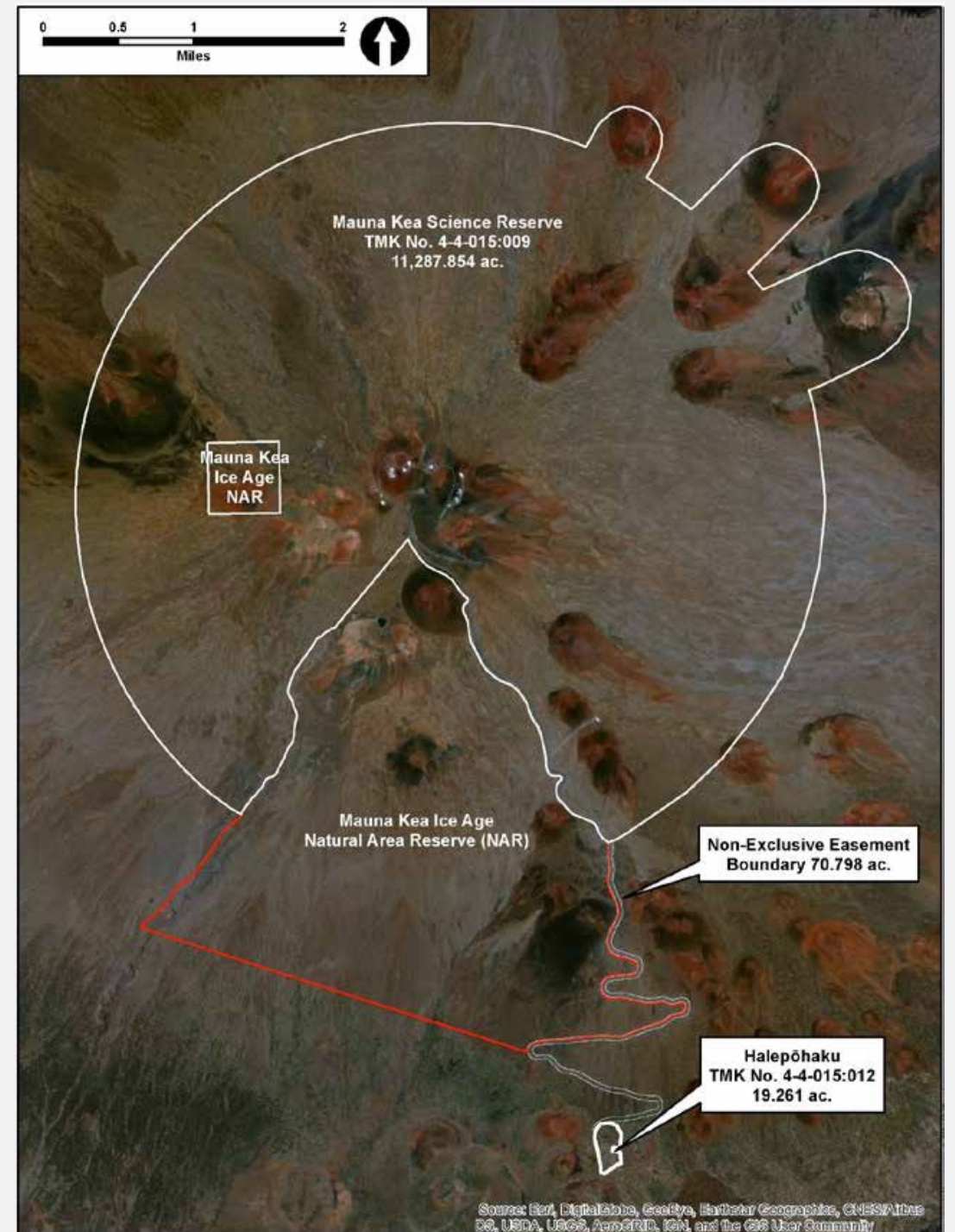
'Āhinahina Maunakea 2022

# UH MANAGEMENT AREAS

Maunakea Science Reserve  
GL S-4191

Hale Pōhaku  
GL S-5529

Roadway Corridor  
ROE S-4697



# *Ke au hou:* A New Era

## 2022 Highlights

- ❖ Governance
- ❖ Planning and Permitting
- ❖ Resource Management
- ❖ Education and Outreach
- ❖ Adaptive Management



# Table 1: Summary of Management Action Highlights

Table 1. CMP Overview: Management Action Highlights		
CMP Management Objective	CMP Management Actions	Highlights
3.2 Identify, document the condition of, and protect cultural resources and historic properties in the UH Management Areas.	CR-10: Implement Historic Property Monitoring Plan (260 identified sites)	<ol style="list-style-type: none"> <li>90 sites visited and documented (CY21) <ul style="list-style-type: none"> <li>No changes to site conditions were detected other than expected by natural conditions.</li> </ul> </li> </ol>
4.2 Increase understanding of the status of natural resources (biotic and abiotic) and identify threats to these resources to better protect and preserve unique geological features, ecosystem functions, subalpine and alpine habitats, and biological communities through adaptive management of stressors and threats.	<p>NR-1 Limit threats to natural resources through management of activities and uses.</p> <p>NR-2 Implement the Maunakea Invasive Species Management Plan (C. Vanderwoude, February 2015) and modify, amend, and update it as warranted.</p> <p>NR-5 Allow, and where possible facilitate, ecosystems to respond to climate change.</p> <p>NR-9 Increase native plant density and diversity through an outplanting program.</p> <p>NR-10 Require mitigation measures in plans for new development.</p> <p>NR-10 Require mitigation measures in plans for new development.</p> <p>NR-12 Plan and conduct habitat restoration activities, as needed.</p> <p>NR-13 Increase communication, networking, and collaborative opportunities that support management and protection of natural resources.</p> <p>NR-17 Conduct research to fill knowledge gaps that cannot be addressed through monitoring.</p>	<ol style="list-style-type: none"> <li>Large Vehicle and Cargo Inspections: <ul style="list-style-type: none"> <li>134 (FY22)</li> </ul> </li> <li>Arthropod Survey: <ul style="list-style-type: none"> <li>111 sites (FY22)</li> </ul> </li> <li>Implementation of native plant outplanting program at the VIS. Plant counts as of 12/29/22: <ul style="list-style-type: none"> <li>Māmane- 525</li> <li>‘Āweoweo- 277</li> <li>Pāwale- 14</li> <li>Pua Kala- 34</li> <li>‘Ena’ena-1689</li> </ul> </li> <li>9,470 lbs. of weeds removed from our restoration area through volunteer programs.</li> <li>Habitat monitoring research conducted in collaboration multiple academic institutions: <ul style="list-style-type: none"> <li>Arthropod Food webs - UH Mānoa</li> <li>Arthropod Biodiversity - Cal U of PA</li> <li>Climate monitoring - UH Mānoa</li> <li>Endosymbionts in <i>Nyctelia spp.</i> - UC Merced</li> <li>Permafrost monitoring (Ongoing) - Planetary Science Institute</li> <li>Water Isotopes - UH Mānoa</li> <li>Seabirds &amp; Bats - UH Hilo</li> <li>Visitor impact study – UH Mānoa</li> <li>Physiological Effects of High-Altitude Acclimation (Ongoing) – Univ of Montana</li> <li>Hydrogeology – UH Mānoa /Hilo Proposed</li> </ul> </li> </ol>

# Governance

## History of Astronomy on Maunakea

## Alternative Models and UH Restructuring 2020

## Act 255 Maunakea Stewardship Oversight Authority

Model Comparison Objectives + Other Factors → Model ↓	Establish clear lines of accountability; Increase Transparency	Broaden diversity and participation of stakeholders in authoritative decision-making	Embrace kuleana to culture and practitioners while continuing to support astronomy and UH's role in advancing both	Optimize internal and external partnerships, collaborations, and networks	Requires Legislative Action Level of Legal Risk and Complexity	Funding	HRS Chapter 171 (Land Authorization Issues)	Notes
Model 1: Attached State Agency								Legislation is critical and risky but could firmly establish the State's policy for astronomy on Maunakea. OMKM and MKSS could be integrated into new agency.
Model 2: BLNR Management								OMKM and MKSS could be integrated into DLNR.  Familiar model for DLNR.
Model 3: New Third Party								No known precedent.  Legislation is critical and risky but could firmly establish the State's policy for astronomy on Maunakea.
Model 4A: Collaborative Stewardship w/UH	Yes	High	Current levels of support maintained, and expanded upon, with 'Imiloa.	Multiple collaborations. Leaves DLNR in quasi-regulatory role.  DRAFT	No  Low-Moderate	Lease rent and commercial revenue goes directly to stewardship, i.e., Maunakea Lands Management Special Fund.  UH also supports stewardship.	UH holds land authorization.  As an agency-to-agency transaction this minimizes HRS Ch 171 ramifications.  15	Will not satisfy those who want UH removed entirely.

# Planning and Permitting

## *E Ō Nā Leo:* Master Plan for the University of Hawai'i Maunakea Lands

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**MASTER PLAN FOR THE UNIVERSITY OF HAWAI'I  
MAUNAKEA LANDS  
E Ō I NĀ LEO (LISTEN TO THE VOICES)\*  
VOLUME 1**



\* The name of this plan, *E Ō I Nā Leo*, and its translation was provided by noted Native Hawaiian scholar Larry Kimura, Associate Professor at UH Hilo. The authors express their deep gratitude for this gift.

ADOPTED BY THE UNIVERSITY OF HAWAI'I BOARD OF REGENTS ON JANUARY 20, 2022

PREPARED FOR:  
**University of Hawai'i**

PREPARED BY:  
**Planning Solutions, Inc.  
Ho'okuleana, LLC**

JANUARY 20, 2022

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- ❖ BOR approved January 2022
- ❖ Proposed land uses
- ❖ Make better/smarter use of what we have.
- ❖ Commits to no more than 9 astronomy facilities at the summit post 2033.
- ❖ Adapts to the uncertainty around TMT and governance
- ❖ Repurpose HP to support UH's broader educational/research mission

# Planning and Permitting

# CMP 2022 Supplement

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**COMPREHENSIVE MANAGEMENT PLAN  
2022 SUPPLEMENT:  
MANAGEMENT ACTIONS UPDATE  
VOLUME 1**

COMPREHENSIVE MANAGEMENT ACTION MEU-2



*APPROVED BY THE UNIVERSITY OF HAWAII'S BOARD OF REGENTS ON MAY 19, 2022  
APPROVED BY THE BOARD OF LAND AND NATURAL RESOURCES ON **JULY 22, 2022***

PREPARED FOR:  
**University of Hawai'i**

PREPARED BY:  
**Planning Solutions, Inc.  
Ho'okuleana, LLC**

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**JULY 23, 2022**

- ❖ BLNR approved July 2022
- ❖ Updates the 2009 CMP
- ❖ Reflects application of adaptive management
- ❖ Contested case request pending

# Planning and Permitting

## Decommissioning

### Caltech Submillimeter Observatory (CSO)

- ❖ CDUP HA-3880 approved Jan 2022
- ❖ Interior equipment and furnishings removed
- ❖ Initial lead/asbestos abatement completed
- ❖ Transportation permits in process
- ❖ Telescope removal Apr-May 2023
- ❖ Facility deconstruction Dec 2023

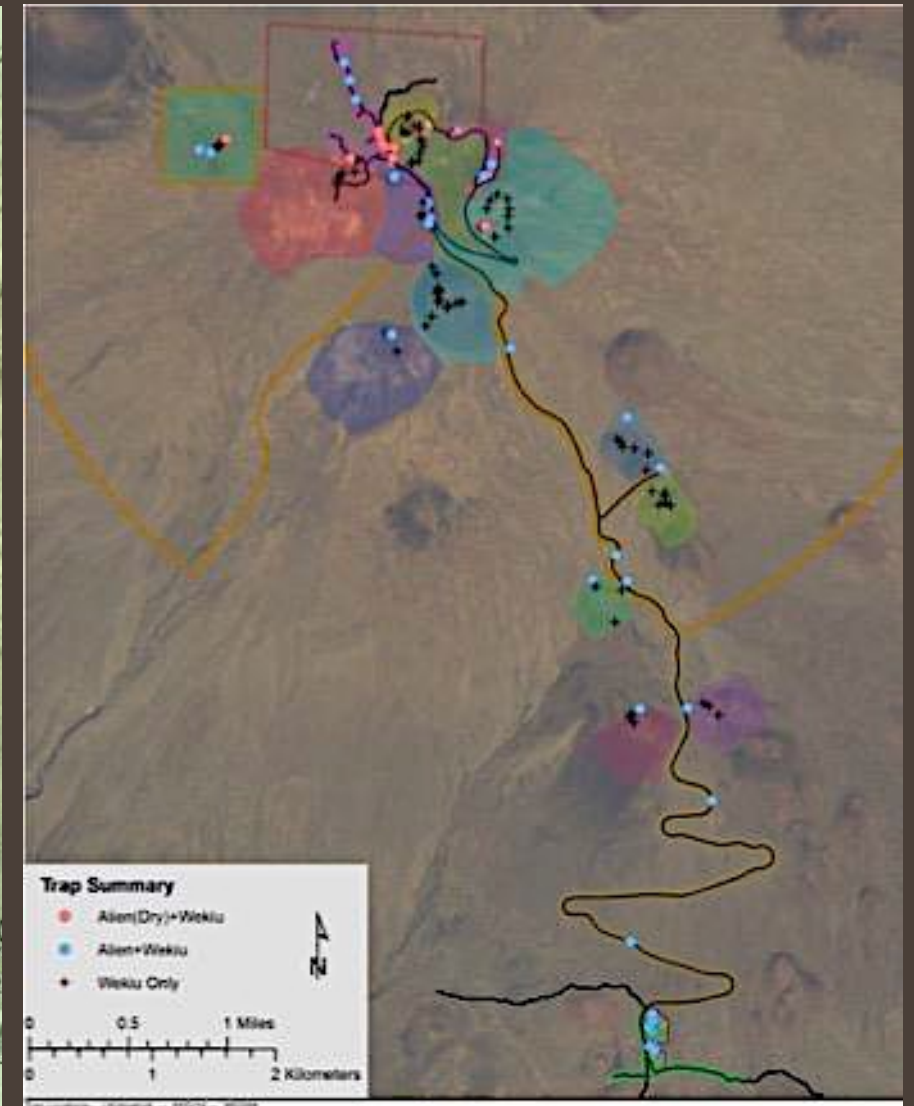
### Hōkū Kea

- ❖ CDUA review in process
- ❖ CDUP approval target May 2023
- ❖ Facility deconstruction Jan 2023



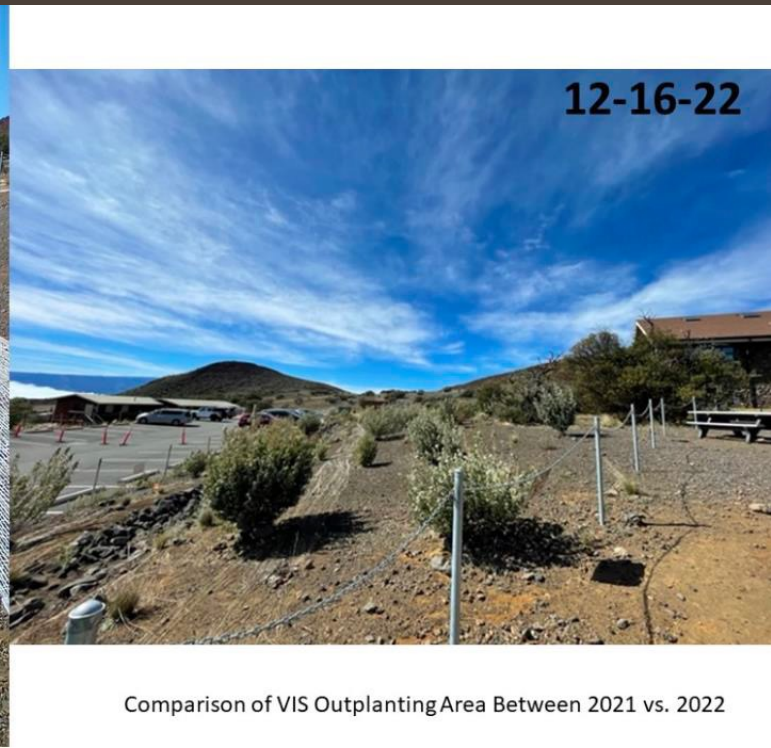
# Resource Management

- ❖ 260 historic sites identified; 90 sites monitored
- ❖ 111 arthropod survey sites
- ❖ No unnatural changes or infestations noted



# Resource Management

- ❖ Native plant restoration plan
- ❖ Silversword propagation in partnership with DOFAW
- ❖ 134 large vehicle inspections
- ❖ 9470 lbs of invasives plants removed



Comparison of VIS Outplanting Area Between 2021 vs. 2022



# Resource Management: Research and Monitoring

- ❖ 'Ua'u (*Pterodroma sandwichensis*) nesting sites discovered on Maunakea
- ❖ UH sponsored research in collaboration with DHHL and DLNR
- ❖ First sighting in over 60 years on Maunakea (DHHL lands)



# Education and Outreach

- ❖ Updated interpretive and safety signage
- ❖ Remodeled VIS interpretive space
- ❖ Restart post-COVID outreach activities



**HŌ'IHI**  
(To be sacred)

**RESPECT FOR CULTURAL SITES**

Maunakea is considered to be one of the most sacred places in Hawai'i as it is home to various Hawaiian deities. Please treat Maunakea with the proper respect.

- Please refrain from removing, replacing, or adding any stones or objects to an Ahu (altar).
- Please refrain from climbing or standing on Ahu, including the summit Ahu.
- Please do not knock over standing stones or relocate them.
- Keanakāko'i (the adze quarry) is a traditional resource, please do not displace stones.
- Lake Waiau and its waters are very sacred, please stay out of the lake and refrain from throwing objects into the lake.
- Treat the mountain, especially the summit, with the utmost respect.

*Holo me ka ha'aha'a (Travel humbly: Be aware, be respectful, be mindful)*

UNIVERSITY OF HAWAII  
HILO



# Adaptive Management

- ❖ Brake Inspections
- ❖ Early Morning Road and Safety Checks





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STEWARDSHIP

# Additional Updates

Transition Priorities

UH88 Spill

# UH Transition Priorities

MKSOA Start-up:  
Education + Admin  
Support

Clarifying Roles and  
Responsibilities:  
MKSOA, DLNR, CMS

Lease and Permit  
Assignments

JOSH GREEN  
GOVERNOR OF HAWAII



## MAUNAKEA STEWARDSHIP OVERSIGHT AUTHORITY (MKSOA) BOARD MEETING

19 E. Kawili Street,  
Hilo, HI 96720  
Telephone (808) 933-0734 Fax (808) 933-3218  
Website: <https://uh.hawaii.gov/maunakea-authority/>

MKSOA MEMBERS

JOHN KOMEJI  
Chairperson

DAWN CHANG

DOUG ADAMS

GENE BAL

KAMANA BEAMER

PALL HORNER

KALEIUA KRUG

LANAKILA MANGAUI

NDE NOE WONG-WILSON

RICH MATSUO

POMAI BERTEL MANN

BONNIE IRWIN

### MEETING AGENDA

Thursday, February 9, 2023

10:00 am

In person at 19 E. Kawili Street,

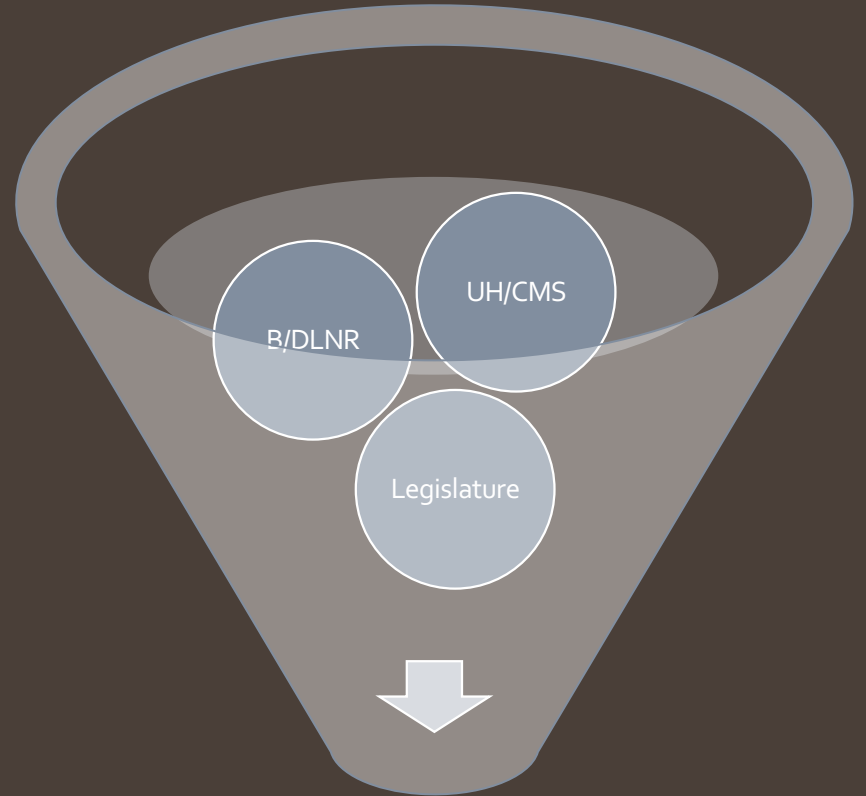
Hilo, HI

Online via ZOOM, livestreamed at

<https://www.youtube.com/@maunakeaauthority>

Board members, staff, and testifiers can choose to participate either in-person, via Zoom or by telephone. Note: The Board members will be participating via live or Zoom for this meeting. Members of the public are asked to wear a mask if attending in-person.

- I. **CALL TO ORDER AND WELCOME PROTOCOL**
- II. **COMMUNITY AND PUBLIC COMMENTS**
- III. **APPROVAL OF THE MINUTES OF THE JANUARY 10, 2023 MEETING**
- IV. **CHAIR REPORT**
- V. **GOVERNANCE**
  - A. Status: Report from Permitted Interaction Group (PIG) created November 22, 2022
- VI. **ADMINISTRATION**
  - A. Status: Hiring Executive Assistant
  - B. Discussion regarding retention of consultants in the following areas (1) Community Outreach; (2) Project Management; (3) External Legal Counsel.
- VII. **FINANCE**
  - A. Report regarding Senate Ways and Means Committee and House Finance Committee appearance.
  - B. Create Permitted Interaction Group to assess, research, study and recommend proposed biennium budget.
- VIII. **OPERATIONAL UPDATE**
  - A. Report on proposed Legislation
  - B. Update regarding UH 88 Observatory incident.
  - C. Report on American Astronomical Society panel presentation.



MKSOA

A BILL FOR AN ACT

RELATING TO MAUNA KEA.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

1 PART I  
2 SECTION 1. The purpose of this Act is to establish the  
3 Mauna Kea stewardship and oversight authority and a transition  
4 and governance structure for the management of Mauna Kea lands.  
5 SECTION 2. The Hawaii Revised Statutes is amended by  
6 adding a new chapter to be appropriately designated and to read  
7 as follows:  
8 "CHAPTER  
9 MAUNA KEA STEWARDSHIP AND OVERSIGHT AUTHORITY  
10 § -1 Findings and purpose. The legislature finds that  
11 Mauna Kea serves as an important cultural and genealogical site  
12 to the people of Hawaii, particularly to Native Hawaiians. The  
13 summit region of Mauna Kea is a spiritual and special place of  
14 significance that is home to cultural landscapes, fragile  
15 habitats, and historical and archaeological artifacts. Due to  
16 its topographical prominence, Mauna Kea is also a highly valued  
17 site for astronomical study, which produces many significant  
18 discoveries that contribute to humanity's study and  
HB2024 CD1 LRB 22-2038-10.doc 1

- ❖ Legislative Intent
- ❖ What Act 255 says and doesn't say
  - ✓ CLEAR - Chapters 171 and 205 (Concerning permits, dispositions, land use approvals, and any other approvals pertaining to the Mauna Kea lands)
  - ✓ UNCLEAR - Chapter 183C (Concerning Conservation District jurisdiction)
  - ✓ CATCH ALL language
- ❖ SILENT - Form of land "title"
- ❖ REQUIRES development of a management plan, leasing procedures, and administrative rules
- ❖ Practical implications of these for implementation and transition
- ❖ *All are highly interdependent and foundational to clarifying roles, responsibilities, authorities, and ultimately the transfer/issuance/oversight of leases, permits, land uses, and public access.*



# UH 88 Spill

- ❖ December 2022 chiller system turned off pre-storm
- ❖ Jan 10 leak discovered upon restart of the system; system turned off and has remained off
- ❖ Two leaks discovered; immediate areas cleaned up and leaks repaired
- ❖ One leak discharged into a drain pipe exiting the facility; drain has been scoped and it appears to dead-end underground outside the building approx. 85' from the drain opening



- ❖ Residual fluid sampled from the drain along with two other samples from the system sent to EPA certified lab in CA
- ❖ System samples confirm ethylene glycol in approx. 37-39% concentration; *no discernible levels found in drain pipe sample*
- ❖ Verbal notifications to DOH and County made and 30 day written follow-up filed
- ❖ Amount of discharge TBD via a plan to refill and restart the system which is being developed in consultation with DOH

# Pau

## Questions

