
METHODOLOGY

During the preparation of the 1983 plan, studies were undertaken which were the first of their kind on Mauna Kea and which provided valuable scientific, archaeological, and ethnographic information. Follow-up work and additional studies have been accomplished in the preparation of this Master Plan as follows:

Dr. Francis Howarth of the Bishop Museum and colleague Greg Brenner have conducted field work and analysis updating arthropod studies done in the 1980s. During the earlier work, Howarth and his team identified numerous arthropods including the Wēkiu bug, which exists only on Mauna Kea and which had not been discovered previously. Recently, Howarth and Brenner tested the bug's population distribution, assessed seasonal trends, and expanded on their understanding of the bug. Their surveys also included other endemic and introduced species.

Archaeologist Patrick McCoy has worked on Mauna Kea for over two decades studying sites in the Mauna Kea Science Reserve and in the Mauna Kea Ice Age Natural Area Reserve. A total of 93 archaeological sites have been identified in surveys encompassing some 3000 acres of land in the Science Reserve (McCoy, 1999). McCoy and Holly McEldowney, both with the State Historic Preservation Division, have prepared an historic preservation management plan for Mauna Kea. The plan identifies and assesses the archaeological sites that have been found in the Science Reserve and suggest guidelines for the future management of the sites and the broader summit plateau.

Cultural specialist Kepā Maly has conducted oral history interviews and archival research to “document some of the traditions and practices associated with Mauna Kea, and to identify some of the significant features of the landscape, including natural and man-made cultural resources on Mauna Kea so that they can be protected, preserved, and appropriately managed in the future” (Maly, 1999).

In addition to Maly's work for this Plan, he conducted earlier archival research of the Humu'ula and Ka'ohē *ahupua'a* for the Native Lands Institute (Maly, 1998). Other cultural specialists have also conducted ethnographic research that is valuable to this effort. Edward and Pualani Kanahēle (1997), and Charles Langlas (1997) conducted studies in association with the Saddle Road Improvement project. Their work provides important information and adds to the greater understanding of Mauna Kea as a cultural place.

The ongoing studies of the natural and cultural resources of Mauna Kea provide sound information that can be used for physical planning and management policy decision-making. In preparing this plan, recent and historical data were compiled in a Geographic Information System (GIS). Information on slope, Wēkiu bug habitat, flora, archaeological sites, cultural landscape features, roads, and astronomy facilities were layered together and analyzed in relationship to one another. These components are

described in Sections IV through VII and analyzed in Section IX. By looking at the information in an integrated way, areas that must be protected and areas that can be used for educational and recreational uses and facilities, including new astronomy facilities, are identified. The physical and management plans included in this Master Plan recommend the continued integration of knowledge, resources, uses and management practices.

In addition to expert research, this planning process incorporates broad community input. In the Spring of 1998, University of Hawai'i president Kenneth Mortimer invited twenty-four individuals to serve on the Mauna Kea Advisory Committee to "help the University of Hawai'i as it plans for future facilities development on the mountain and strives to improve its management of the Science Reserve and the Visitors' Station at Hale Pōhaku." (Mortimer, May 8, 1998) Committee members represented various organizations including the University of Hawai'i at Hilo, the UH Institute for Astronomy, environmental groups, the business community, native Hawaiian organizations, state agencies, county government, and the broader Hawai'i community. In his invitation to the individual committee members the President stated that "The purpose of the Mauna Kea Advisory Committee in its broadest terms is to provide needed input to the University of Hawai'i and the people of the State of Hawai'i regarding the conditions under which future development should occur on Mauna Kea" (Mortimer, May 8, 1998).

This Committee met regularly from June, 1998 to August, 1999 to discuss existing conditions, management issues, and the future uses and management of Mauna Kea. The Committee invited various experts to their meetings and conducted an initial round of public meetings to gather the opinions and suggestions of the broader Hawai'i Island community. Public meetings were held in the communities of Waimea, Kona, and Hilo on August 31, September 1, and September 3, 1998, respectively. Approximately 50 individuals attended the Waimea meeting, 15 attended the Kona meeting, and 100 attended the meeting in Hilo (all numbers are estimates). A variety of views were expressed during these meetings. Some individuals expressed the need for better management of the mountain's resources. Some felt that no more astronomy facilities should be developed on the Mauna Kea summit plateau. Others expressed an appreciation for the scientific and economic benefits provided by the astronomy industry and a desire for astronomy to continue and expand.

During Advisory Committee meetings, several members presented specific proposals, representing their views or the views of organizations they represent. Committee members reviewed and discussed proposals before providing recommendations.

The Committee conducted a second series of public meetings during which specific physical and management proposals were presented to the community. As in the first series of public meetings, these were held in Waimea, Kona, and Hilo on May 24, 25, and 27, 1999, respectively. During these meetings a slide presentation was given by Group 70 International, Inc. The presentation reviewed the natural, cultural, recreational and educational resources of the mountain and introduced the master plan, with proposed

facilities and management structure. Community members were asked to share their reactions and proposals for the mountain. Based on their own deliberations and the feedback received from the community, the Mauna Kea Advisory Committee formulated and forwarded their recommendations to the University President. In addition to the information shared in Committee meetings and public meetings, Group 70 also met with other community members, groups, and experts to discuss possible recommendations for the physical and management plans. Among those contacted were representatives of the astronomy community nationwide, the National Park Service, the Department of Land and Natural Resources, the UH Administration, the Department of Hawaiian Home Lands, and representatives of various Hawai'i Island organizations such as the ILWU, Chambers of Commerce, and local school administrations. This report, while a product of Group 70 International which is responsible for any errors, therefore incorporates the recommendations of the Mauna Kea Advisory Committee, and the input of many other stakeholders.

An Environmental Impact Statement (EIS) has been prepared for this Master Plan in accordance with Hawai'i Revised Statutes, Chapter 343. During the public review process, the comments received from the public and from governmental agencies were assessed and responses incorporated into the revised Master Plan report. The Final EIS was accepted by the Governor on February 2, 2000. The University of Hawai'i Board of Regents adopted the Mauna Kea Science Reserve Master Plan in June 2000.

PLANNING COMPONENTS BACKGROUND SECTIONS

Natural Environment Culture Education and Research Recreation Issues and Opportunities

In Hawai‘i and elsewhere, those who know of Mauna Kea have a personal sense of the mountain and its resources. While each has their own experience and perception, there is a wealth of historical and scientific knowledge available for sharing and for use in planning for the future of the mountain.

The following sections explore the use and resource components that combine to create the unique history, landscape and activities of Mauna Kea. The natural environment – the *pu‘u*, glacial remains, atmospheric qualities, and views - and cultural resources – landscape and archaeological sites - of Mauna Kea shape much of today’s use of the mountain. Because of the unique natural and cultural qualities of the mountain, its slopes and summit plateau are used by a variety of individuals and organizations for cultural practice, education, research, and recreation.

Natural environment, culture, education and research, and recreation components are presented in the following sections. Previous studies are reviewed and on-going research is discussed. Current uses are explored as are the potentials for new uses in the future. The use and management of these components, and their relationships with each other create both issues that must be addressed and opportunities that may be explored. These issues and opportunities are also discussed.

Taken as a whole, these sections provide the basis for the development of the physical and management plans that follow. Many of the Master Plan’s recommendations are based on the research and issues explored here.