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Mr. Rod Moss
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May 28, 1989

Re: Research Design for Future Explorations of Geothermal Development in the Wao Kele O Puna Natural Area Reserve.
TMK: 1-2-10:3

Dear Mr. Moss:

At the request of your office, Archaeological Consultants of Hawaii, Inc. has prepared a preliminary research design for future work at the above location. The purpose of this work is to provide a set of general guidelines regarding the approach and treatment of cultural resources that may be encountered.

INTRODUCTION

A major methodological problem is presented to any potential archaeological research associated with this project; and this problem is multifaceted. The first consideration is the volume of land involved (approximately 9,000 acres) and the rugged topographic condition of the land, and secondly, the type of archaeological resources likely to be scattered throughout this large area.

Previous historical and archaeological studies (Holmes (1985), Bonk (1988), Kennedy (1982), and Rosendahl (1985) have determined that cultural resources are likely to be present here and have determined some specific descriptions regarding the nature of these sites and, in some cases, their general locations.

For example, it has been established through field survey that some surface site occurrence should be expected in the areas in and around cinder cones.

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Furthermore, the ethnohistoric literature for this area documents the presence of trails, caves and agricultural sites. It is generally agreed that forest exploitation camps sites will also be present in the study area and that they should be the object of some archaeological attention.

RESEARCH METHODOLOGY

There are some obvious first steps that may be considered regarding the discovery of and treatment of cultural resources. The first is the production of a predictive model. The following list should be given consideration:

1) Prior to the development of any portion of the subject property a site specific search of the available historic literature may determine, for example, if the trail used by the Wilkes Expedition, will be within development boundaries.

2) A vegetative survey in order to identify the possible presence of cultigens such as bananas which are associated with human activity and are unlikely to have spread by natural dispersing agents.

3) The identification of kipuka which may contain the remnant of pre-flow human activity. These kipuka were also often the locus of upland agricultural efforts after recent flows.

4) The identification of pahoehoe areas that would narrow and help identify areas of lava tube formation. The investigation of these tubes should be considered a high priority issue for they are often used as temporary shelters and burial locations.

5) The identification of areas such as cinder cones where previous research has determined a likelihood of site occurrence.

6) The identification of recent lava flow areas in order to eliminate further work where none would be necessary.

These six preliminary steps in the proposed design model can be addressed in ways other than the traditional ground survey method. Map and literature search would be sufficient for most and a review of aerial photographs reconnaissance could determine the remainder.

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RESEARCH METHODOLOGY (CONT.)

After these six preliminary steps have been completed for each proposed development area on the subject property, ground survey should follow based on significance evaluation of each category.

This ground inspection may then be limited to those areas thought to be productive and would eliminate the need for the wholesale inspection of large tracts of heavily forested land. Surveys specific to these suspected productive areas may be conducted in the traditional fashion (i.e. transect sweeps) but may not require total coverage. Sampling within these select areas may be acceptable under some circumstances and might serve to further concentrate the archaeological ground survey effort.

An additional step is recommended after ground survey is completed. This would be an inspection of recently graded properties (roads, drilling pads, etc.) in order to search for diognastics of buried deposits. These indicators may well present themselves after preliminary work by heavy equipment has been completed.

While we consider these recommendations as necessary first steps to be employed prior to the development of each specific impacted area within the subject property as a whole, we are also aware that preliminary predictive indicators may well not address the issue of subsurface sites such as temporary camping locations, work areas, etc.

The identification of buried archaeological sites of this nature in such a location presents a thorny problem that requires an approach much different than the one presented above.

These sites are most likely not only buried, but also temporary, meaning that indicators such as developed stratigraphic layers, perishable midden accumulations and foundation outlines would not be present. In addition, preservation of many diagnostic materials in this environment is expected to be poor and substantial root development would also complicate matters.

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In short, the prediction of occurrence and identification of temporary forest shelter sites that were used hundreds of years ago by small bands such as bird feather collectors (who traveled light, using highly perishable tools such as nets and snares) may not be possible.

RESEARCH METHODS (CONT.)

There is an exception to this argument. It may well be that such sites were rather well developed units in fixed locations that were visited time and again over long periods. If this is the case, such sites may not be buried at all or only partially so and therefore would lend themselves to identification by means of surface survey or subsurface testing.

These camps may have been used by groups visiting the upland forest for feather collection as well as by those whose purpose was logging. In the later instance, basaltic flakes, sharpening and grinding stones may be expected.

The question at this point is how to determine the state of affairs concerning this issue. The obvious first choice is surface survey along the proposed impacted areas of the study area. As we understand the nature of this geothermal exploration, access roads are to be constructed to drilling facilities throughout the property. Essentially, these will consist of long, narrow ribbons of roadwork leading to relatively small clearings.

It is proposed then, that in addition to the predictive model work outlined earlier in this report, a surface survey be conducted prior to the construction of each road and facility site. This will provide a brand of random sampling (archaeologically speaking) of the project area that may or may not conform to those areas with predictive potentials. These surveys would be limited to the actual impacted areas.

Survey teams would be alive to predictive site types when survey routes pass through areas such as kipuka, cave and cinder cone zones - and in all areas attempt to determine the location of campsites through the identification of diagnostic materials such as established structures, basaltic waste flake scatter debris, etc.

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In our opinion, the elusive temporary campsites in this upland forest area are either buried, random, and so lacking in diagnostic materials that archaeological identification and data recovery is impossible or impractical, or else more formal and subject to mixed use by a variety of forest users.

RESEARCH METHODS (CONT)

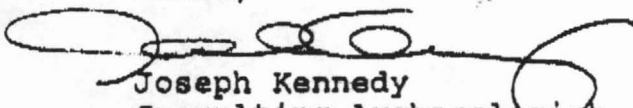
In this case both portable as well as nonportable artifacts would likely be present and somewhat obvious to a trained field survey team. When and if such sites are encountered, standard archaeological methods may be employed to recover the appropriate information.

If such sites are located and subjected to both surface and subsurface investigations, the principal investigator may determine if additional monitoring will be necessary. On the other hand, if the above procedures have been executed for several future increments of development and prove ineffective, some modifications may be suggested to eliminate a portion of the recommended steps.

At the very least, a body of information will be collected regarding the presence or absence of such sites as archaeological predictive model testing and limited ground survey accompany geothermal exploration in this area.

If there are any questions regarding this preliminary research design, please feel free to contact me.

Aloha,



Joseph Kennedy
Consulting Archaeologist