Strategies for Constructing Religious Authority in Ancient Hawai‘i

Mark D. McCoy[1], Thegn N. Ladefoged[2], Michael W. Graves,[3] and Jesse W. Stephen[4]

[1] University of Otago, Department of Anthropology, P.O. Box 56, Dunedin, New Zealand 9054. mark.mccoy@otago.ac.nz, +64 3 479.8748 (office), +64 3 479.9095 (fax), communicating author

[2] University of Auckland, Department of Anthropology, t.ladefoged@auckland.ac.nz

[3] University of New Mexico, Department of Anthropology, mwgraves@unm.edu

[4] University of Hawaii, Mānoa, Department of Anthropology, jstephen@hawaii.edu

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## Introduction

Temples, monuments, shrines, and religious precincts are among our most valuable material markers of how authority was constructed and dispatched in the rise of hierarchical societies. The way archaeologists view these structures has in large part changed from one in which they are seen as "passive measures… of political developments" to gateways for understanding "how ritual action functioned to define, empower, divide, and transform" social actors (Swenson 2006:256). This insight does not negate earlier work, such as the classic observation that the size of religious buildings can be linked to the rise of state societies. Rather, this view extends a political economy perspective and pushes us to consider how different societies exploit similar social strategies using symbols and monumentality to create and maintain a hierarchical social order.

By the time of European contact in 1778, Hawai'i had undergone a fundamental shift from small chiefdoms to several large independent polities with a shared state religion and an archaic state society distinct from the rest of Polynesia (Kirch 2010). Kolb (2006:657) notes that Hawaiian temples (*heiau*) were part of a "network to provide the proper infrastructure for expressing the ideology of kingship, feudalizing land tenure practices, imposing ritual taboos on labor and production, and engaging in internecine warfare over territory." The political elites commissioned the construction of temples and this was overseen by members of formal priestly classes (Malo 1951; Kamakau 1961, 1976).

In Hawai'i the question of how different strategies were employed to create religious authority has proved challenging. There is wide stylistic variation in Hawaiian temples that resists straightforward classification (Kirch 1985:257-265; Cachola-Abad 1996), and there is some question as to when on the path to political unification the greatest effort was invested in the creation of monumental scaled structures (Kirch and Sharp 2005; Kolb 2006). Archaeologists have tried to infer changes in strategies by analyzing architectural elements, layout, and the size of temples (Table 1). Here we expand on the earlier work of Mulrooney and Ladefoged (2005) who investigated a small sample of eight temples within the leeward Kohala Field System (LKFS) on Hawai'i Island, and present the results of an analysis of a larger dataset of 19 temples and 15 radiocarbon dates. We define when strategies such as elaboration, exclusion, and monumentality were dispatched, and delineate how this sequence of temple development provides insights into the poorly documented priestly class (Kirch et al. 2010).

**Hawaiian Religion and Temples (*Heiau*)**

Ritual authority in ancient Hawai‘i was divided among several classes: the political elite (*ali‘i*, chiefs) who inherited their status, the formal priests and other experts (*kahuna*), and informal part-time ritual practitioners (Valeri 1985). The chiefs held authority over the initiation of new architectural projects – i.e., temple construction – however the size of these structures was dictated by the chief's level in the political hierarchy. The priests and other experts held wide-ranging authority over temple design and location as well as officiating at ceremonies before, during, and after the construction. There were a number of religious sects including a superior order of the war god Kū and an inferior order of Lono, a major god associated with agriculture and other activities (Malo 1951:159). Informal ritual specialists were associated with the commoner classes and family level religion as well as unsanctioned religious authority.

Locating and interpreting archaeological sites as *heiau* or other ritual structures has relied heavily on ethnohistorical information and surface architecture. This began in earnest within a hundred years of the abolishment of traditional Hawaiian religion by royal decree in 1819 (Stokes 1991). Modern studies of Hawaiian temples were initiated in the 1960s and 1970s with excavations that showed progressively larger and more elaborate structures over time (for a recent review, see McCoy 2008:263-4). Archaeologists have worked to build chronologies of Hawaiian temple construction through direct dating ($^{14}$C, $^{230}$Ur), architectural seriation, oral traditions, and when appropriate a combination of all three lines of evidence (Ladd 1969, 1973; Green 1980; Weisler & Kirch 1985; Kirch 1990, 2004; Kolb 1991, 1992, 1994, 1997, 2006; Graves & Cachola-Abad 1996; McCoy 1999; Cordy 2000; Kirch & Sharp 2005; Mulrooney & Ladefoged 2005; McCoy 2006, 2008; McCoy et al. 2009). These chronologies have proven useful in tracking the scale of investment in ritual sites (Kolb 1994, 1997; Mulrooney et al. 2005), the subdivision of land units as marked by temple construction (Kolb 1997; Mulrooney & Ladefoged 2005; McCoy 2008), and identify stylistic elements used by architects to set temples off as sacred spaces (Kolb 1994; Ruggles 2001; Kirch 2004; McCoy 2008).

Kolb's (1992, 1994) excavations at eight Maui *heiau* and a survey of temples across the island documented significant changes in architectural form. He (Kolb 1994:532) interpreted the shift from, "open courts to elevated platforms and enclosures" as a means to "to limit public participation." He has also highlighted other markers of changes in religious authority including the spread of the notched style of temple layout, a drop in investment in

temple construction, and an increase in evidence of domesticate animal tribute (pig) (Kolb 1992, 1994, 2006:663). These architectural shifts were taken as indicators of a greater exclusion of commoners from ceremonies and a local Maui Island stylistic innovation. Kolb (1997, 2006) has also defined a tripartite scheme based on the size of temples. He suggests small sized structures (200 $m^2$) were built by the pooled labor of a family group, medium community shrines (650 $m^2$) were constructed with the cooperation of a single community, and larger polity temples (2,000 $m^2$) were built by major corvee labor.

Kirch (2004) and Ruggles (2001) note that temple orientations show close associations between compass directions and specific deities, and Kirch & Sharp (2005) have used $^{230}$Ur dating of corals to identify an episode of intense temple construction in AD 1580 – AD 1640. However, Kolb's (2006:657) recent $^{14}$C dating of 41 Maui temples from six political districts suggests four peak periods of construction – AD 1240-60, AD 1360-80, AD 1540-60, and AD 1800-20 – which he interprets as "distinct periods of political tension," and both Weisler et al. (2006) and Kolb (2006) have suggested coral offerings were collected and placed on built structures rather than marking the construction event. Clearly more research is necessary to determine the trajectory of Maui temple construction.

**Temples of the Leeward Kohala Field System (LKFS)**

The LKFS, a 60 $km^2$ zone of former rain-fed agricultural fields, houses, and ritual sites, is among the best preserved archaeological landscapes in Polynesia. Temples in the upland fields would have required only a small labor force to construct and at most would have accommodated only groups of a few dozen people at ceremonies. Their regular placement at the center and boundaries of community scaled territories (*ahupua'a*) recorded in the mid-nineteenth century denotes their importance in the social-religious landscape. Ethnohistoric sources on Hawaiian religion suggest that many of the northeast oriented upland *heiau* were likely dedicated to the god Lono who is strongly associated with dryland planting.

Mulrooney & Ladefoged (2005) used the variation in ritual architecture in the LKFS to develop an architectural seriation ordering of eight *heiau* (H1-H8) in four periods. These periods were then matched to an existing relative chronology of land unit sub-division that had been developed by Ladefoged & Graves (2006). The land unit seriation was based on the relationship of boundary lines to one another and land unit names. At the time of Mulrooney & Ladefoged's (2005) research, the only evidence that was available to sync this dual

seriation in time was a single late-prehistoric era date that placed the last relative period after AD 1650. Our current research builds on these observations by increasing the sample of temples (n=19), providing reliable *terminus post quem* dates for seven temples, and making the interpretive link between stylistic changes, social strategies (elaboration, exclusion, monumentality), and the development of the priestly sect of Lono.

**Methods**

In 2008 we initiated a project to extend the temple construction sequence in the LKFS and bracket this chronology using absolute radiocarbon dates (Figures 1 & 2; McCoy & Stephen 2008). We designed this investigation to be minimally invasive. Nineteen *heiau* were recorded in terms of their size, location, and architectural style. Temples were mapped with tape and compass, and locations and associations with territorial boundaries were recorded with high-end GPS units. The area ($m^2$) of each temple was calculated from digitizing field maps. We defined a set of architectural traits useful for seriation based on the previous work of Graves & Cachola-Abad (1996:23) and Mulrooney & Ladefoged (2005:Table 2). Basic formal traits include the presence or absence of a *platform* (a raised freestanding surface), a *courtyard* (a central open area defined by a continuous architectural element such as a wall), a *terrace* (a surface created by cutting and filling with two or three freestanding sides), a *notch* (an additional corner creating with two new sides), and *upright stones (*stones purposefully placed in un-natural position usually with length perpendicular to the ground). We note that these attributes are slightly different than those used by Mulrooney & Ladefoged (2005), and are more useful for ordering a larger group of LKFS temples.

Minimal excavation was done at each *heiau*, with small 25 x 25 cm test pits dug under the basal course of foundation stones. Charcoal was collected *in situ* and using simple floatation, and was sorted into short lived wood taxa identified on the basis of anatomical features. Wood identification was done by Gail Murakami using fresh fractured transverse facets and an American Optical Stereoscan dissecting microscope with maximum 40x magnification.

A total of 15 AMS radiocarbon dates from 11 *heiau* were obtained (Table 2). For this study, our aim was to establish *terminus post quem* (TPQ) as indicated by the latest radiocarbon date from under foundation stones. The earliest end of the calibrated age range (2 sigma, Calib 5.0.) allows us to identify a point in time after which the site was constructed. These 11 TPQ dates generally meet the expected ordering based on our seriation (Table 2).

Three dates are clear reversals in the general trend and yielded dates beyond the extreme earliest and latest dates found (i.e., before the earliest temple, or after the latest temple). These results are attributed to the introduction of material from bioturbation or refurbishing of temples over their lifetime of use, and are thus rejected. The remaining TPQ reversal (MKI-124) is unlike these other cases in that it is nearly identical to the next dated site (KH1-3), and so while it is rejected, this TPQ generally supports the chronology presented.

## Results

### *Seriation of Temples*

We refined the seriation of Mulrooney & Ladefoged (2005) to classify the 19 *heiau* into four styles: (A) temples with a platform, some of which include additional traits (courtyard, terrace, and upright stones) (n=3); (B) temples with a courtyard, terrace, and upright stones (n=5); (C) temples with a courtyard and terrace, some of which include upright stones and notching (n=7); and (D) temples with a terrace (n=4) (Figure 3). Styles B and D are uniform in terms of the attributes present, while the members of Styles A are diverse but are nonetheless grouped together since they include a unique early feature, the focal platform. The temples included in the later part of Style C do not have two key attributes, notch and upright stones, but again these are included with Style C, rather than Style D, since these sites have courtyards, an attribute that drops out of use in the last phase.

There are two key differences between the groups defined in the previous seriation of Mulrooney & Ladefoged (2005) and the styles presented here. First, the *heiau* in Mulrooney & Ladefoged's (2005) final group (Group 4) labeled KAL-25 (or H4) and MKI-122 (or H6), were originally defined simply by the presence of a wall. These are now classified as earlier Style B temples on the basis of the presence of upright stones, the use of courtyards, and the presence of a terrace. Second, while these *heiau* were re-classed, other temples not originally considered in the previous seriation have come to occupy that latest phase (Style D). Thus, re-classification of the Group 4 *heiau* and the identification of this new group of *heiau* results in a new ordering.

We note that the average size of temples changes little over the sequence, however, the maximum end of the range increases in Style C and D. According to Kolb's (1997) size classes the change is size would represent the introduction of polity scaled temples (Figure

4). Overall, we see a change in strategies from exclusion via elaborate courtyards (Styles A to C) to monumentality in size (Styles C and D); and simplification of style (Style D).

*Absolute Dates of Temple Styles*

The architectural seriation suggests a relative order of the four styles identified (A to B to C to D), and using radiocarbon dating it is possible to bracket the construction of temples in absolute time. The radiocarbon date from KAL-26 indicates that Style A can be no earlier than AD 1474 (2 sigma), and the date from KHO-1 indicates that Style B can be no earlier than AD 1522 (2 sigma). Therefore, we can bracket Style A to between AD 1474 and AD 1522 with the caveat that the actual date range of construction will be later than these dates directly in proportion to the amount of time that passed between the dated events (e.g., the death of the short lived plant taxa) and laying down the stone foundations of the temples. The latest Style B temple (MKI-122) appears to have been built after AD 1647, marking the earliest possible date for the Style B-Style C transition. Thus, Style B can be bracket to AD 1522 to AD 1647 with the same caveat that this range represents the earliest possible construction period.

The latest dates from Styles C and D allow us to bracket them in time to AD 1647 to 1680 and post-AD 1680 respectively. Given that temple construction probably ceased around the time of the official end of Hawaiian religion by royal decree in AD 1819, we can further bracket Style D to AD 1680 - AD 1819. Again, we should note that these are rough approximations and we are not able to eliminate the possibility that Style D represents a post-contact innovation. But, as we will discuss below, we believe that Style D was probably the current style of temple construction at the time of contact. To be clear, these age ranges (A= AD 1474-1522; B= AD 1522-1647; C= AD 1647-1680; D= AD 1680-1819) are somewhat misleading in their precision; these are simply our best approximation for the age in which these styles were popular.

*Evolution of Social Boundaries*

The spatial distribution of each of the four temple styles matches our relative construction sequence of territorial boundary construction (Ladefoged and Graves 2006). Style A temples (AD 1474-1522) appear to have been constructed in the center of two large territorial units with Style B temples (AD 1522-1647) built between these temples when the area was divided in to at least four territorial units. The construction of Style C temples (AD

1647-1680), continues this in-filling process and probably represent the creation of the study area's eleven territories recorded in the early historic period. Style D temples (AD 1680-1819), which represent a break with earlier temple building traditions in style and size, appear to have been built at a relative regular spacing across the field system within established territories. Overall, these spatial patterns fit what was found in the previous study with the caveat that the reassignment of *heiau* yields a slightly different placement of temples relative to boundaries, specifically more matched temples build on either side of boundaries; as opposed to having been built in the center of territories or on the edge without a matching temple on the opposite side.

**Discussion**

Changes in temple style, size and location in the LKFS give us insight in to the strategies employed by ritual specialists and political elites to generate and maintain religious authority. Initially, sometime late in the 15$^{th}$ century or early in the 16$^{th}$ century, there were small sized temples with platforms as well as a range of other features (Style A). These were located in the centers of two broad territorial units that divided an area that had probably been a zone of sweet potato gardening for about a century (Ladefoged et al. 2005). This is not the only sign that formalization of rituals had become intertwined with industry in the 15$^{th}$ century on Hawai'i Island. Shrines found at the summit of Mauna Kea show clear evidence of use from 1398 (+/- 13) and were probably concurrent with the first large scale use of what would become the region's largest adze quarry (McCoy et al. 2009).

It is hard to say if these early LKFS temples mark the start of what Malo (1951) and others would later call "the cult of Lono." But, the onset of religious ceremonies in this upland location does fit what we would expect for Lono-centered worship. Religious authority of ritual specialists at this stage in some cases was gained from participation in rituals focused on platforms and exclusionary courtyards rather than authority derived from membership in a larger priestly class via unifying symbols (such as the notched style of *heiau*) or the use of monumentality (e.g., creating architecture that is meant to impress through sheer size). Thus, if the priestly class did exist, it may have been in its infancy and the local political hierarchy could have consisted of as few as only one or two chiefs. But, more importantly, this suggests the rise of the priestly class may have been part of a new arrangement of land tenure and management in which commoners were cut off from land holding.

The second style, courtyards (Style B), shows a more concerted effort in all temples to use exclusion to create authority through rituals. At this stage in the 16th to mid-17th century, subdivision doubled the number of land units with a concurrent increase in the number of new temple sites. However, temples are still small in size showing that the strategy of monumentality remained unused in this portion of the landscape. This is not to say that monumentality was not in regular use in other environmental or social contexts (Kirch & Sharp 2005; Kolb 2006; Weisler et al. 2006).

The third style, notched courtyards (Style C), shows a continuation in the 17th century of the previous style with the addition of notches – a symbol found on at least two other islands (Weisler & Kirch 1985; Kolb 1994; McCoy 2006), and was especially prevalent in dry districts of Maui (Kolb 1992). We interpret this as a sign that additional religious authority was being drawn from membership in a cross-polity sect of priests dedicated to Lono, but we would stop short of equating the notch style exclusively with the sect of Lono, or argue that the onset of this style marks the creation of the sect. Equally important, the number of political territorial units (*ahupua'a*) in that area of the LKFS more than doubled suggesting the influence of the elite class continued to grow as does the number of temples. Interestingly, this is the first real jump in the size of temples and may indicate the beginning of a greater dominance of the political elite over religious authority.

Late in the 17th century courtyards are abandoned for large terraces (Style D), there is a sharp increase in the upper range of temple sizes, and there is a simplification of style. This simplification of architectural style and increase in size is suggestive of a shift to an emphasis on authority derived from monumentality, rather than strategies of exclusion or elaboration. This late period increase in size does correspond to increased wars of consolidation on Hawai'i Island (Cordy 2000), and suggests that in some areas of the archipelago the scale of ritual architecture continued to increase up to, and possibly after European contact.

**Conclusion**

The remarkable degree of variation in temple architecture found in Hawai'i can in part be attributed to overlapping controlling strategies expressed by the priestly and political ruling classes through ritual architecture. It seems likely that the priestly classes formed as part of a shift in land tenure and management strategies in the late 15th century. While priests were probably always an embedded part of the larger ruling class, it may not have been until the century before European contact that religious authority was fully dominated by the

political elite as monumentality became pervasive at the expense of other strategies. This marks a key turning point in the rise of complex societies in which the political elite succeeded in not just incorporating but completely subsuming religious authority.

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## Figures

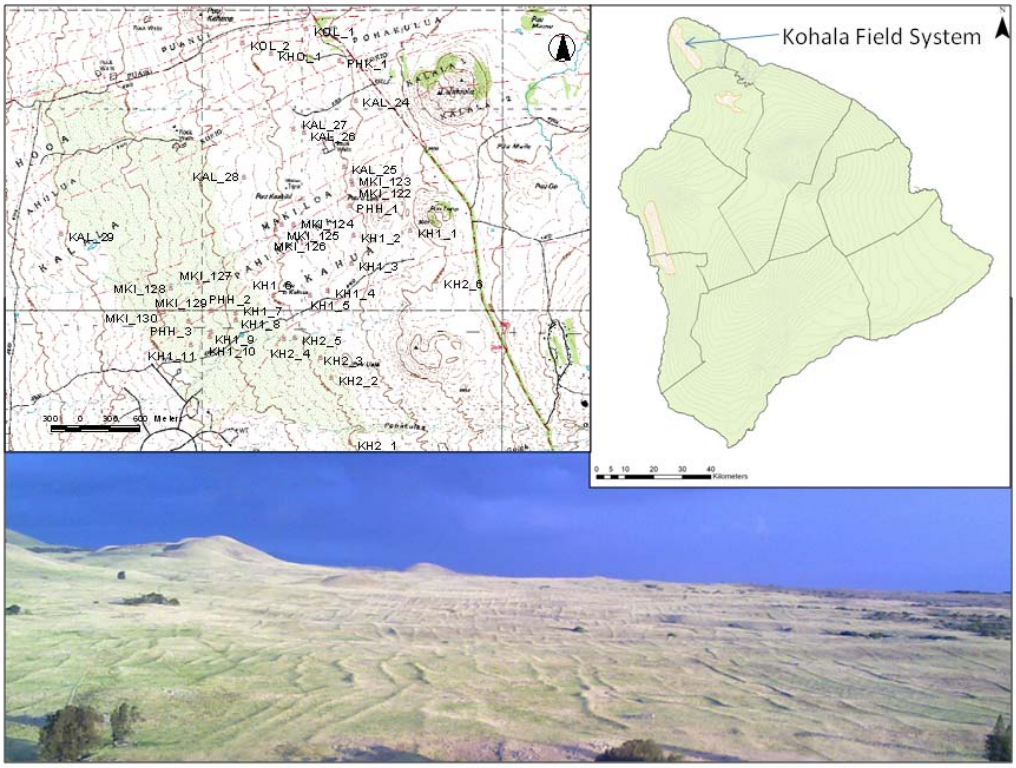


**Figure 1**. Temples (*heiau*) in the southern leeward Kohala Field System (LKFS), Hawai‘i Island. Top, right: Traditional districts of Hawai‘i Island; top, left: location of sites examined; bottom: grid of field border walls in the Kohala Field System (photo by M.D. McCoy).

**Figure 2**. Excavation Location at 'Style A' Temple (*heiau*), KAL-27. A small excavation was placed on the outside of the main structure near the southern corner to obtain datable samples from under foundation stones (photo by M.D. McCoy).

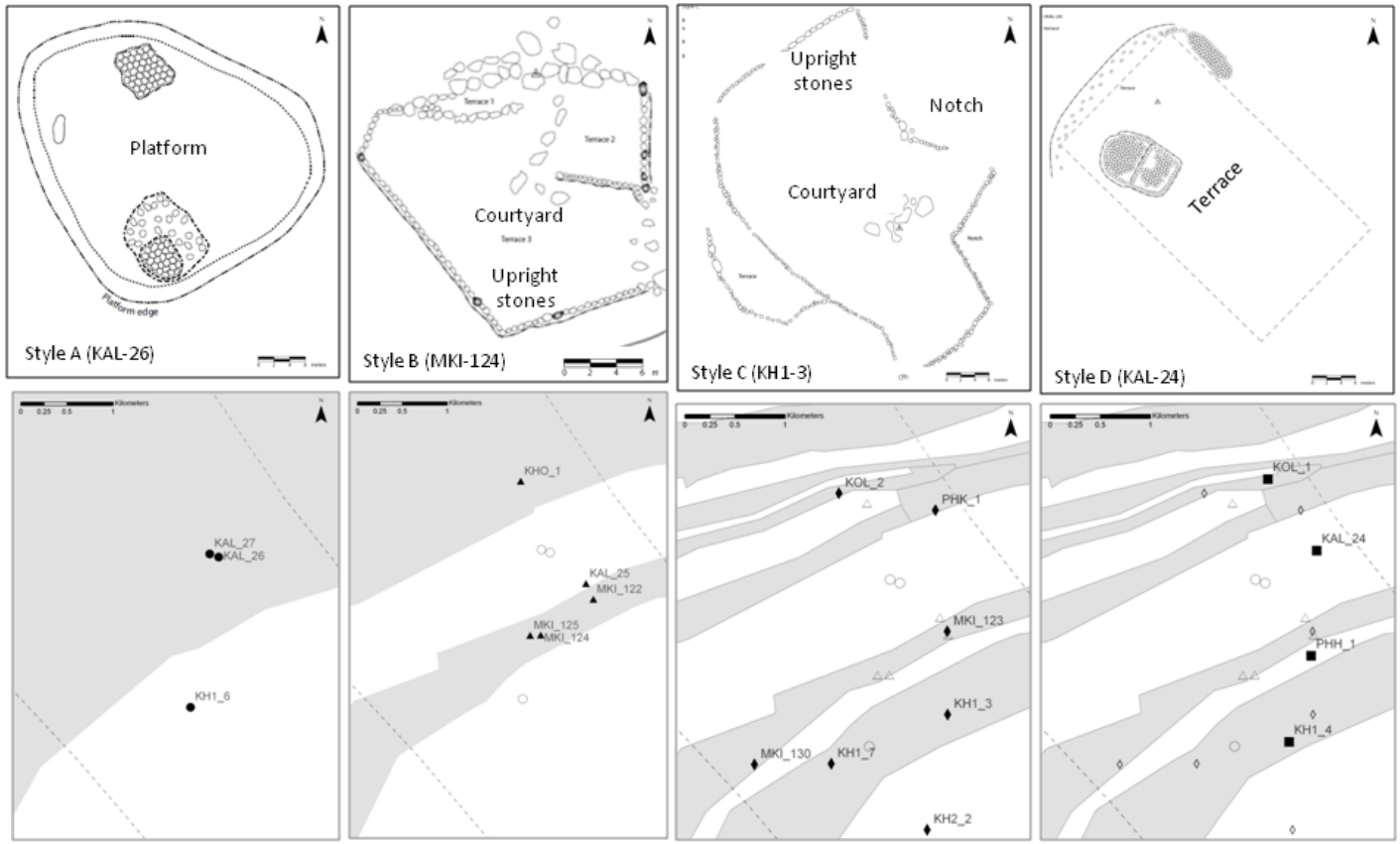


**Figure 3**. Temple Style Seriation and Land Unit Sub-divisions. Note examples of Style A and D have historic period burial cairns built on top of them.

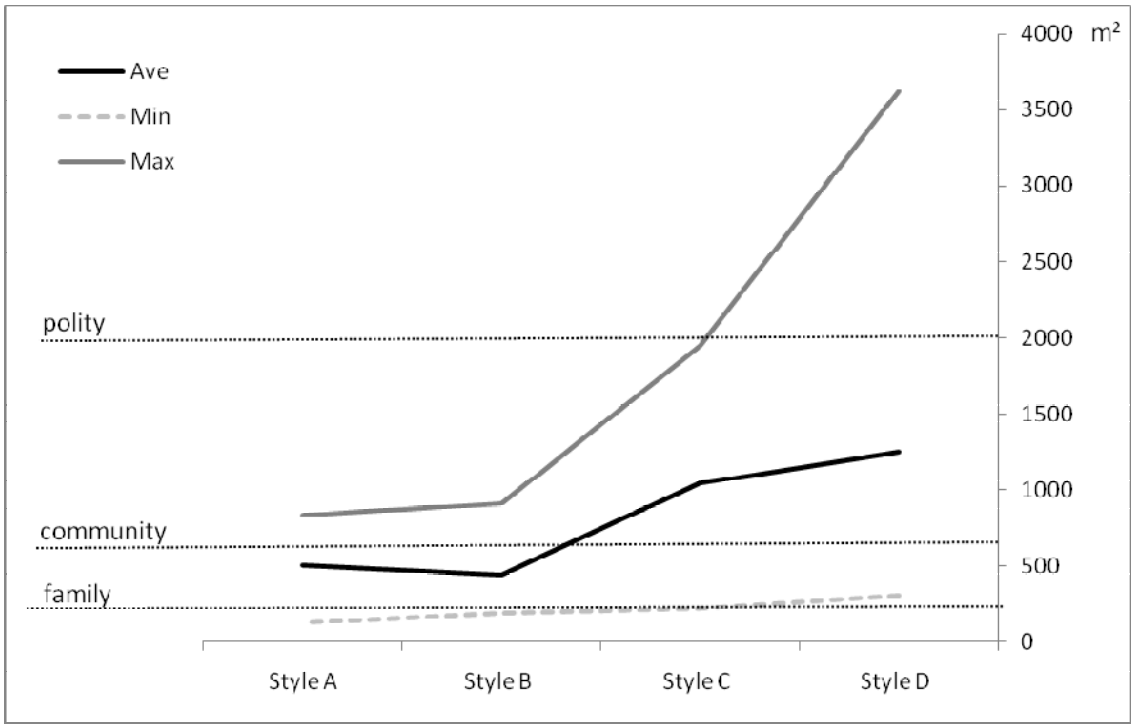


**Figure 4**. Size of Temples. Note the increase in maximum size in Styles C and D. Estimated average size of temples important at the family, community and polity scale after Kolb (1997).

## Tables

| Strategy/Goal | Examples of Architectural Elements Used | Sources |
|---|---|---|
| Unusual Architectural Elements to Signal Locations as Sacred (elaboration) | placement of stones in upright position in fashion similar to upright carved wooden images (*ki'i*) | Kirch 1985 |
| Symbolic Reference to Sacred Direction/Location to Link Ceremonies to Mythic Tradition | purposeful orientation of structures to reference a direction associated with a particular god or mythic tradition;<br><br>making distinctive style of temple layout that is 'notched' in plan view to highlight a direction, usually northeast | Kirch 2004; Kolb 1992, 1994 |
| Use of Offerings to Signify Sanctity of Locations, People, and Objects | waterworn stones, coral, flora and fauna ritually deposited at sites | Kirch and Sharp 2005; McCoy et al. 2009; Kolb 1992 |
| Use of Size/Height to Visually Impress (monumentality) | the elevation of focal points with platforms and terraces;<br><br>the construction of massive multi-tiered | Kirch 1985 |
| Use of Boundary to Divide Ritual Practitioners from Other Participants to Distinguish Social Tiers (exclusion) | the construction of walls to set off interior space, or courtyard, as exclusive to ritual practitioners | Kolb 1992, 1994 |
| Feasting to Signal Higher Status of Locations and People | over-consumption of high-status foods | Kolb 1992, 1994; Kirch 1985 |

**Table 1**. Stratigies Employed at Sites of Ritual to Create and Maintain Religious Power in Hawai'i.

| | Site | Plat-form | Upright Stones | Terrace | Court-yard | Notch | Earliest Construction (TPQ) | Radiocarbon Date |
|---|---|---|---|---|---|---|---|---|
| **Style D post 1680** | KOL-1 | | | ✖ | | | | |
| | KH1-4 | | | ✖ | | | | |
| | PHH-1 | | | ✖ | | | | |
| | KAL-24 | | | ✖ | | | **1680** | **125 BP +/- 25; NOAMS-0809-9** |
| **Style C post 1647** | PHK-1 | | | ✖ | ✖ | | | |
| | KH2-2 | | | ✖ | ✖ | | 1470 | 335+/125; NOAMS-0809-11; 300+/-30; Beta-250428 |
| | MKI-123 (H5) | | ✖ | ✖ | ✖ | ✖ | **1664** | 255+/-30; NOAMS-0809-4; **160 BP +/- 30; NOAMS-0809-5** |
| | KOL-2 | | ✖ | ✖ | ✖ | ✖ | 1691 | 65+/-30; NOAMS-0809-14 |
| | KH1-7 | | ✖ | ✖ | ✖ | ✖ | | |
| | MKI-130 | | ✖ | ✖ | ✖ | ✖ | | |
| | KH1-3 (H1) | | ✖ | ✖ | ✖ | ✖ | **1647** | **200 BP +/- 30; NOAMS-0809-10** |
| **Style B post 1522** | MKI-125 | | ✖ | ✖ | ✖ | | 1648 | 195+/-30; NOAMS-0808-6 |
| | MKI-124 (H8) | | ✖ | ✖ | ✖ | | **1530** | **210 BP +/- 40; Beta-250426** |
| | MKI-122 (H6) | | ✖ | ✖ | ✖ | | 1694 | 60+/-25; NOAMS-0809-2; 455+/130; NOAMS-0809-3 |
| | KHO-1 | | ✖ | ✖ | ✖ | | **1522** | 275+/30; NOAMS-0809-13; **250 BP +/- 30; NOAMS-0809-12** |
| **Style A post 1474** | KH1-6 | ✖ | ✖ | ✖ | ✖ | | | |
| | KAL-27 | ✖ | ✖ | ✖ | | | **1476** | **305 BP +/- 40; NOAMS-0809-7** |
| | KAL-26 (H3) | ✖ | | | | | **1474** | **300 BP +/- 40; Beta-250427** |

**Table 2**. Seriation of Temple Sites, southern leeward Kohala Field System (LKFS), Hawai‘i Island. AMS $^{14}C$ dates are on charcoal from short lived plant taxa and selected from a battery of 15 total dates on material excavated from under foundation stones. In sum, seven dates (bold) were accepted as securely pre-dating construction.